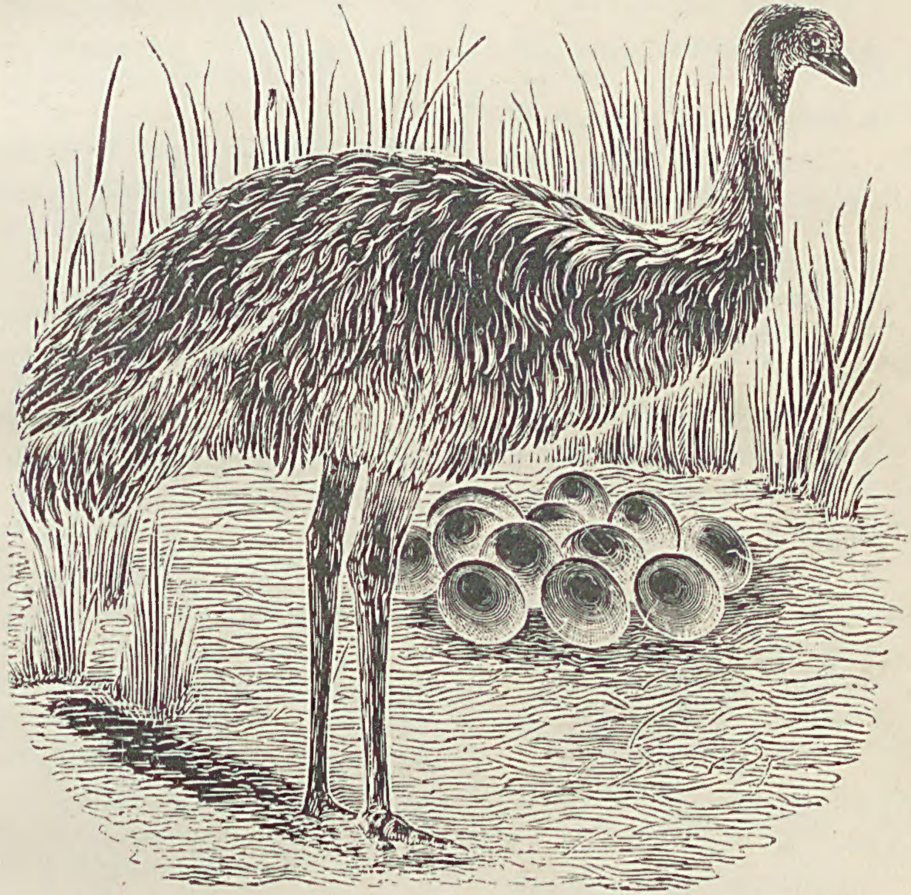
The Emu

A Quarterly Magazine to popularise the Study and Protection of Native Birds and to record Results of Scientific Research in Ornithology.

VOL. XXV.—1925-26.

NATIONAL MUSEUM MELBOURNE



Acting Editor :
A. H. CHISHOLM, C.F.A.O.U

Assistant Editor :
N. W. CAYLEY, M.B.O.U.

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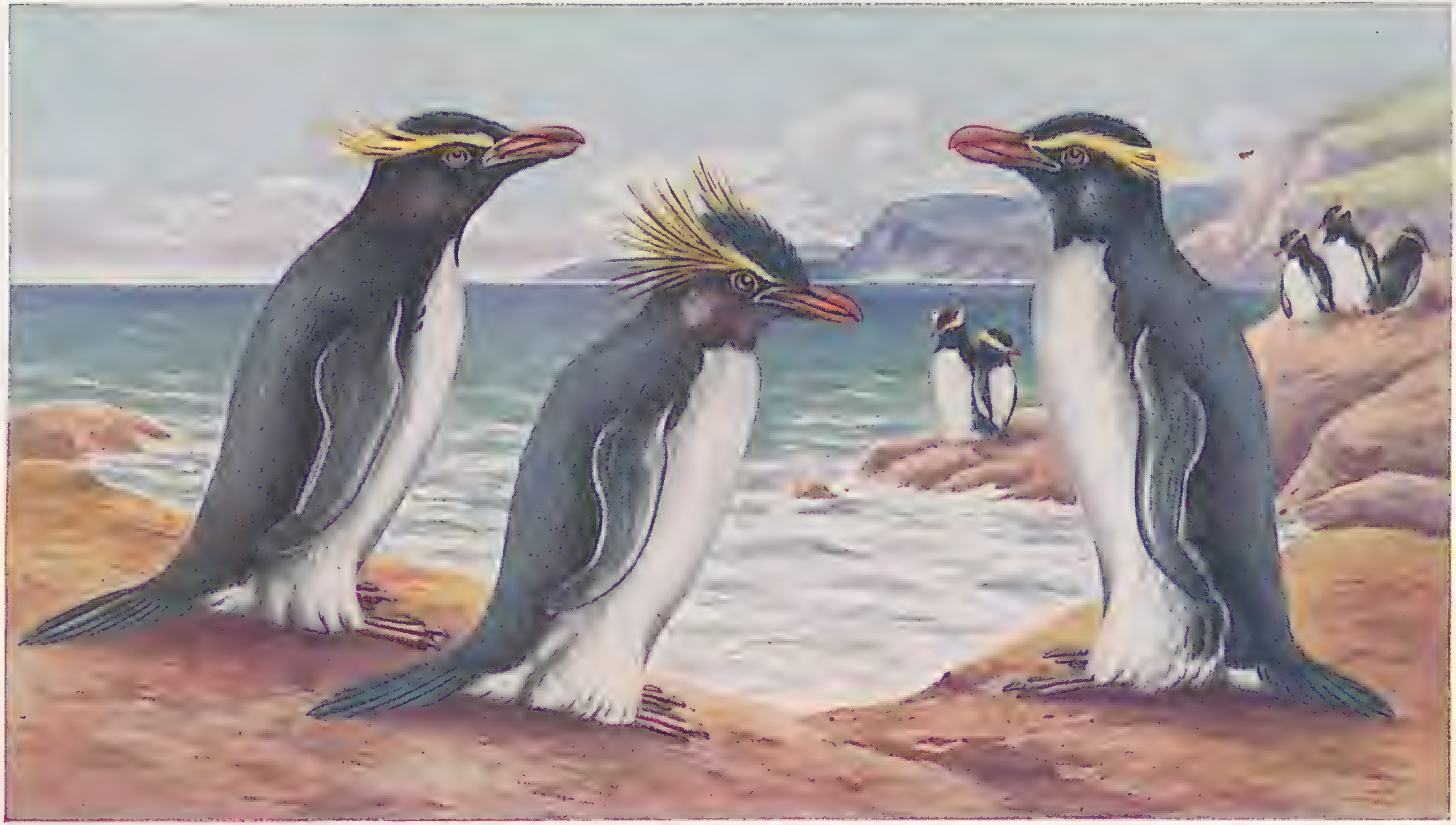

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AUSTRALIAN CRESTED PENGUINS

Eudyptes sclateri Buller, *E. cristatus* (Miller), *and E. pachyrhynchus* Gray.

From a painting by Neville W. Cayley, R.A.O.U.

The Emu

OFFICIAL ORGAN OF THE
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"Birds of a Feather."

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NATIONAL HERBARIUM MELBOURNE

Australian Crested Penguins.

By TOM IREDALE and N. W. CAYLEY, M.B.O.U.

As Penguins are probably the oldest of living birds they must always be of interest to ornithologists, which interest must be increased in our case as they are the most characteristic of Antarctic Birds, being restricted to the southern oceans and lands, rarely extending northwards. Moreover it is known that they have lived in these localities for some millions of years in the same advanced stage of swimming bird, flightless yet mobile to an extent paralleled by few flying birds. It may be that once southern Australia was peopled by such birds, but at the present time we have only one native and that the smallest of the group. Nevertheless, though the least, it may be the most aristocratic member, as it shows definitely many primitive characters.

At odd times examples of the larger species that breed upon the Sub-antarctic Islands of the south are driven from their icy haunts to find themselves stranded on our inhospitable shores. Most of these birds belong to a series which possess yellow crest plumes and hence are known as Crested Penguins. The species are not yet well known as they dwell on small islets throughout their range, and, while some colonies are only sub-specifically distinguishable, there are five easily discriminated species, and out of this number either three or four have occurred in Australia, though the number of examples yet identified can be counted on the fingers of the hands.

Attempts have been made to determine the species with varying results due to the factors abovementioned and the difficulty of diagnosing the species.

The present essay definitely establishes the occurrence of three species but leaves the question of the fourth in abeyance—a matter for regret.

Mathews showed that two species had occurred in Australia and then Mathews and Iredale suggested the recognition of a third.

A complete account of the intricate problems met with was prepared, but owing to the difficulty of determining the identity of the third the matter was not published. A new factor was later brought to light and this item was published. In the meantime Hull prepared and published a complete historical account of the species in connection with the occurrence of a bird in New South Wales .. To this paper, published in Rec. Austr. Mus. XII., 1918, 71-80, pls. X-XI., we would refer readers for all technical references.

Cayley working through material in the Museums of Australia discovered an undoubted specimen of still another species and thereupon drew up data in connection with this group. This also was not published so that in order to bring our knowledge before our co-workers we have prepared the following resumé of the facts to date.

As the names to be used for the species have long been a matter of dispute, we regret that in this place we must discuss the facts, but will do so as briefly as possible, consistent with truth and clarity.

The history of Australian Penguins begins with the capture of a Crested Penguin by some member of Furneaux's crew when the "Adventure" called in at what is now known as Adventure Bay in South Tasmania. As there was no naturalist on board the specimen was roughly preserved, and then handed over to J. R. Forster when the "Adventure" joined up with the "Resolution" under Captain Cook in New Zealand. J. R. Forster then drew up a detailed description of this specimen and George Forster made a pencil outline sketch, but never completed the painting.

After his return to Europe, J. R. Forster published a Monograph of the Penguins and therein proposed the name *chrysocome* to cover all the Crested Penguins. He did not know the value of the differences he noted among the birds, but carefully recorded these in his description. Forster had previously translated Bougainville's "Voyage" into English, and therein read about the Penguins discovered by Bougainville which had yellow crests. As the Tasmanian bird had also a yellow crest of a sort he regarded it as of the same species, and while he was preparing his account a bird was received in England from the Falkland Islands also with yellow crest feathers. As Bougainville had seen the birds on the Falkland Islands, Forster naturally concluded that this specimen was representative of those described in Bougainville's account. Thereupon, when Forster's Monograph appeared, *chrysocome* was used for the species of Crested Penguin, and Forster noted that Furneaux had met with the bird in Tasmania, that Bougainville had also found it at the Falkland Islands, and that some birds had yellow side crests while in some the yellow extended across the forehead. A figure was appended, and as J. R. Forster said that his son George had painted a picture of the Tasmanian bird, this plate was regarded as being prepared from that painting, whereas it was made, from the Falkland Island specimen he mentioned, by J. Miller, a well-known botanical draughtsman, who had published the plate separately.

Thus the name *chrysocome* was introduced for a very complex mixture, as Miller's bird differed from the Falkland Island birds mentioned by Bougainville, and both were different from the Tasmanian killed example. Through the Tasmanian locality being mentioned first this has been regarded as the type locality of *chrysocome*, and the figure has been cited as representing the Tasmanian example. The pencil sketch prepared by George Forster is preserved in the British Museum (Natural History) and shows the essential details necessary for the correct determination of the species, which is not the one figured.

Many years afterward the three species confused by Forster were disentangled, Brandt differentiating the Falkland Island species which had the yellow extending over the forehead under the name *chrysolophus*. Then Gray, receiving a bird from Waikiowiti, Otago, New Zealand, observed the different nature of the crest, and seizing upon the thick heavy bill named it *pachyrhynchus*. Gould simultaneously had received a bird from Roland Gunn, secured in Tasmania, and had included it in the Birds of Australia under the name *chrysocome*. Examination of Forster's pencil sketch showed it to be a drawing of the form named by Gray and then it was noted that Gould's figure was also drawn from a specimen of the same species. Mathews also figured a bird of this style as representing the species found in Australia but also under the name *chrysocome*. Were the matter as simple as here stated all that would be necessary would be the substitution of Gray's name, *pachyrhynchus*, for the wrongly used *chrysocome*, but through the confusion some workers urge that *chrysocome* ahould be used for the long crested bird figured by Forster and that Tasmania should be cited as the type locality thereof.

Fortunately, all criticism and dispute is now obviated by the recognition of Miller's publication of his original drawing of his Falkland Island specimen with the name *cristatus* given to it.

The name *chrysocome* can now be rightly discarded and three certain names used for the three species figured on the plate.

There has been trouble in connection with other names, both generic and specific, but these need not greatly concern us in this place. Upon an imperfect and inaccurate account of a Penguin of sorts from the South Seas, the specific name, *demersa*, was based by Linné. As Linné placed this in the genus *Phaethon*, the Tropic Bird, its identity can scarcely be guessed at. However, upon this was based Brisson's genus *Catarractes* and this generic name has been sometimes used for these Crested Penguins, a point scarcely worthy of discussion. *Eudyptes* is now accepted as the valid name for the group, and the three species at present admitted we name *Eudyptes cristatus* (Miller), *E. pachyrhynchus*, Gray and *E. sclateri*, Buller.

The distinguishing characters can be epitomised but specimens should be examined in connection with these points and then there will be little difficulty in determining adult birds. The attached sketches should materially assist in this matter, but until many specimens have been studied there may be hesitation in identifying immature birds. For this reason, one of the Australian specimens is still on the doubtful list as the published data are not definite enough and we have been unable to see the specimen.

EUDYPTES CRISTATUS (Miller).

Aptenodytes crestata (sic), Miller, Illustrations 1785 pl., Falkland Islands.

Aptenodytes chrysocome Forster, Comment. Soc. Reg. Sci. Gotting. Vol. III., p. 133, pl. 1, 1781 (figure and Falkland Island locality, part of description only.)

Eudyptes serresianus, Mathews and Iredale, Manual Birds Austr., Vol. I., p. 11., pl. 1, 1921.

This is the smallest of the Crested Penguins, and is easily recognised by its flowing crest of very long plumes which stand out on each side of the head, giving it a very wild appearance, seen in all photographs. In death the contrast of coloration between the cheeks and throat and the top of the head is a marked feature, while the back is generally of a notably paler shade of blue. The bill is comparatively small.

The species was described from the Falkland Islands as noted above and has a sub-antarctic range, but valid sub-specific distinctions can be seen. These have been indicated by Sclater and Salvin when they examined the material brought to England by the Challenger. Mr. Murray, who collected the specimens remarked on the differences presented by the birds in life, concluding they were separable varietally. Watson, dealing with the skulls of the same specimens recorded differences which were remarked upon by Hutton in this Journal. Hutton had differentiated as a distinct species *Eudyptes filholi* from Campbell Island, when the species were confused, but called the Little Macaroni in the essay quoted *C. chrysocome*, following the Catalogue of Birds of the British Museum.

The species has been recorded from the Falkland Islands, Tierra del Fuego, Tristan d'Acunha, Inaccessible Group, St. Paul's Island, Kerguelen Island and the Sub-antarctic Islands of New Zealand.

Mathews and Iredale in the Manual subspecifically named the forms previously indicated without nomination, using Hutton's name, *filholi*, for the Neozelanic series. The Neozelanic form has been recorded from all the southern groups, Snares, Auckland, Campbell, Antipodes, Bounty Island, and the Macquaries.

The Australian records appear to be as follows :—Tasmania, in the Macleay Museum, Sydney (figured) ; St. Francis Island, Nuyts Archipelago, South Australia, collected by Master F. Arnold on April 10, 1913, and presented to the South Australian Museum through Sir Joseph Verco : Rottnest Island, Western Australia, July 10, 1909, Cat. 1450, and Middleton Beach, near Albany, Western Australia, Dec. 1896, A1509, Western Australian Museum.*

EUDYPTES PACHYRHYNCHUS Gray.

Eudyptes pachyrhynchus, Gray, Voy. Erebus and Terror, Birds, p. 17 ; 1845. Waikiowiti, South Island, N.Z.

Aptenodytes chrysocome, Forster, Comment. Soc. Reg. Sci. Gotting. Vol. III., p. 133, 1781 (Tasmanian locality and part of description only).

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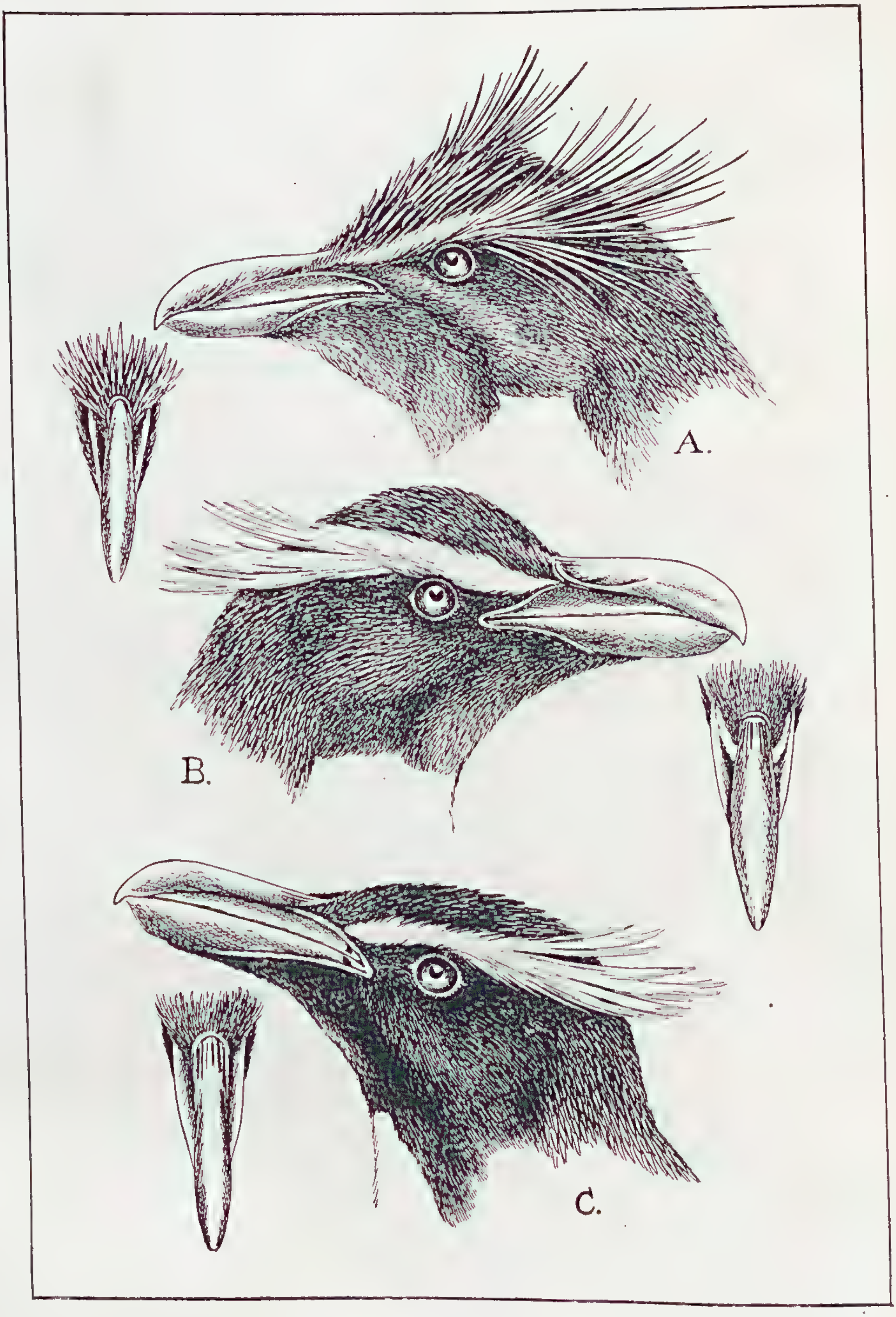
* These two birds appear to belong to the Kerguelen Island race.



A. *Eudyptes cristatus* (Miller).
B. *Eudyptes pachyrhynchus*, Gray.
C. *Eudyptes sclateri*, Buller.

NATIONAL MUSEUM MELBOURNE

Eudyptes chrysocome Gould, Birds Aust., Vol. VII., pl. 83, 1848. (Tasmanian example figured). Mathews, Birds Austr., Vol. I., pl. 65, 1911.

Eudyptes pachyrhynchus Mathews and Iredale, Manual Birds Austr., Vol. I, p. 10, pl. 1, 1921.

The thick bill from which this species gets its name is a notable feature but is not always conspicuous, the shape of the crest and its place of origin in connection with the form of the coloration of the foreneck are features enabling its determination. The shape of the culminicorn separates it from *E. sclateri* and the crest formation effectually distinguishes it from *E. cristatus.*

The immature plumages are not so well known, as, though many phases are on record, these may not apply to the species as a whole : the same remark applies to the plumage changes of *E. cristatus.*

The species appears to be restricted to the New Zealand area, save that there is a specimen from the Falkland Islands in the British Museum which agrees better with this species than any other. Moreover Gould described a new species from the Falkland Islands of which the type is now missing but of which the description reads as if referable to this species.

The species breeds on the mainland of New Zealand, on the Snares, Bounty Island, but not on Macquarie Island, although apparently stragglers are in the Rothschild Museum from the latter locality.

It is this species which has so far been recognised most often in Australian waters as, since Furneaux's extraordinary chance meeting of it in Tasmania, Gunn found it on the North Coast of Tasmania, while there is a specimen in the Macleay Museum from Tasmania. A bird captured at Lorne, Victoria but which escaped again was also of this species.

As far north as Ettalong, Woy Woy, New South Wales this species has been met with and we have examined a male specimen in the South Australian Museum procured at Cape Banks, South Australia on Jan. 8, 1914, by J. W. Hilton, the Head Keeper of the Lighthouse there.

EUDYPTES SCLATERI Buller.

Eudyptes sclateri Buller, Birds N. Zeal., 2nd ed., vol. II, p. 289, 1888, Auckland Is.

Very similar to *E. pachyrhynchus*, Gray, but apparently easily separable by the shape of the culminicorn, which is confirmed in all the specimens so far examined, in the generally larger size as to the bill, flipper and feet and the position from which the superciliary band arises. There is also a distinct difference in the shape of the black colouring of the fore neck : in the preceding species the black appears to be marked off from the white in a more or less straight line whereas in this species the white runs into an inverted V.

This species was described from the Auckland Islands where it does not appear to breed. Waite recorded it from the Campbell, Antipodes and Bounty Islands. Iredale has examined specimens from the Auckland Islands, Antipodes, Campbell, Snares, Bounty and Chatham Islands.

There is in the Australian Museum a fine specimen collected by H. Hamilton at the Nuggets, Macquarie Island, to which place it had only straggled (figured). This is a female and the colour notes on the label read :— Iris, reddish like Royal : Bill, reddish brown : Feet flesh white above, black below : Culmen, 51 mm : Flipper 191 mm : Tail 150 mm.

The introduction of this species to the Australian list is due to the recognition by Cayley and A. J. Campbell of a specimen mounted in the National Museum, Melbourne, No. 58131, from the Julia Percy Islands, Victoria.

EUDYPTES SCHLEGELI Finsch.

Eudyptes schlegeli, Finsch, Trans. New Zeal. Inst. Vol. VIII., 1875, p. 204, 1876, Macquarie Island.

C. chrysocome Dove, *Ibis*, 1915, p. 86. Hull, Rec. Austr. Mus. Vol. XII., pl. XI., *f*.2 ; 1918.

This species is characterised by its dusky to white throat, its large size and the fact that the yellow colouring extends across the forehead.

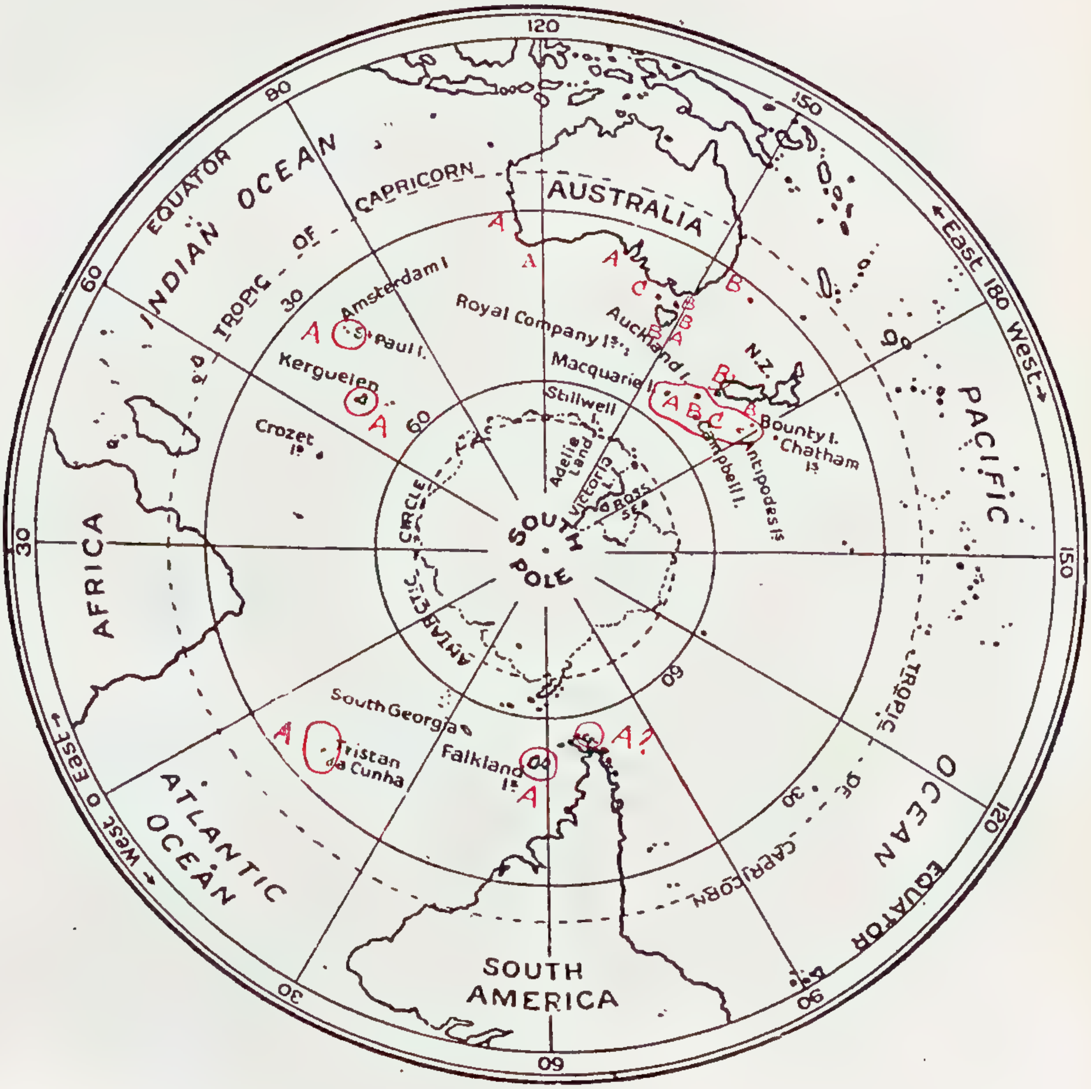
H. Stuart Dove has recorded a bird from north Tasmania which Mathews and Iredale included in the Manual under the above name. We have been unable to examine this specimen so that until it is examined by someone familiar with these birds the exact location of this individual must remain in doubt. Cayley is strongly of the opinion that Dove's individual will turn out to belong to *pachyrhynchus* but even granting that it does not belong to *schlegeli*, there is still *sclateri* to consider. It obviously cannot be referred to the other species *cristatus* from the description and poor photograph reproduced by Hull.

We have to tender thanks to the Trustees and Directors of the Australian Museum, Sydney, the National Museum, Melbourne, the South Australian Museum, Adelaide, and the Western Australian Museum, Perth, for their generosity in allowing us to examine specimens in their charge and thereby making certain of the identity of the examples here recorded.

For assistance Mr. N. W. Cayley especially wishes to thank Mr. J. Roy Kinghorn of the Australian Museum, Mr. A. F. Bassett Hull, Mr. A. J. Campbell, and Mr. R. Stuart Sutherland.

Black-tailed Native-hen (*Tribonyx ventralis*) in New Zealand.—The New Zealand Journal of Science and Technology, Vol. VI. page 191, records that a bird of this species was shot at Oraki, Colac Bay, Southland, in June, 1923. This is the first record of the occurrence of the Black-tailed Native-hen in New Zealand.—R. H. D. STIDOLPH, Wellington, N.Z.

MAP OF OCCURRENCES IN AUSTRALIA AND TASMANIA AND BREEDING RANGE OF SPECIES.



A. *Eudyptes cristatus* (Miller.)

B. *Eudyptes pachyrhynchus*, Gray.

C. *Eudpytes sclateri*, Buller.

NOTE.—It is regretted that the "Royal Company Is." appear on this map, especially as it was owing to representations made by the R.A.O.U. that the Admiralty decided that they did not exist and removed them from all official charts. —*Editor.*

Variation of the Yellow-tailed Thornbill.

Geobasileus chrysorrhous (Quoy and Gaimard).

By A. G. CAMPBELL, J.P., R.A.O.U., Kilsyth, Vic.

THIS species was one of the discoveries of the French naturalists Quoy and Gaimard who in 1827 visited Australia with a scientific party. The type description* is worthy of notice. " *Saxicola chrysorrhoa.* Length 4 inches ; head brown marked with dirty white on forehead ; shoulders olivaceous ; feathers covering the tail pure yellow ; feathers of tail yellower at their origin, black the rest of their extent ; tips cloudy white ; top of throat and cheeks white, dotted with brown ; belly yellowish white ; feathers on underside of tail white. New Holland." (Translation.)

An excellent coloured figure is found in Gould's " Birds of Australia," Vol. III., plate 63 (1840) and two important subspecies are figured in Matthews "Birds of Australia," Vol. IX., plate 452 (1922).

There is no record of the TYPE specimen being still in existence nor is there any definite plesiotype established in any national collection. Two skins from the Gould collection are in the British Museum, one from South Australia and the other from Swan River, W.A.

Examination of Skins.—2161 ♂, 2162 ♀ Sutherland, Botany Bay, N.S.W. This pair of birds comes from near what is generally presumed to be the type locality. They differ considerably from the type description in the following particulars, forehead is black each feather being tipped white ; eyebrows white, also lores which are connected across base of bill by a small frontal band of white ; crown grey extending well down on the hind neck, each feather having a dusky fringe ; tail tips white ; throat white without any brown dots or edgings ; flanks colonial buff, under tail-coverts yellow. The female here differs from the male in having less grey on the crown, and in having the under tail-coverts only slightly washed with yellow. Bill .35 in., wing 2.2 in., tail 1.6, tarsus .75 in.

2178 ♂, 2179 ♀, Tarana, N.S.W., 2176 ♂, Roseville, N.S.W., 2177 ♀, Mulgoa, N.S.W., are all similar to 2161. 7841, 7842, no sex, Dubbo, N.S.W., like 2161 but slightly darker on the breast (loaned by the Aus. Mus., Syd.).

* * *

2169 ♂, 2168 ♀, Scone, N.S.W., like 2161, except that breast, flanks, and abdomen are distinctly yellowish, ♂ has yellow shaft stripe to feathers of breast, ♀ has less grey on crown than ♂.

2167 ♂, Scone, N.S.W., similar to 2169, but less grey on crown.

2163 ♂, 2164 ♀, Cobbora, N.S.W., both similar to 2169.

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*Quoy and Gaimard " Voyage l'Astrolabe," Zool., Vol. I., p. 198 and figure plate 10 (1830). New Holland is generally taken to be Port Jackson, New South Wales, the first settlement. But there is some doubt whether this is the real type locality of *S. chrysorrhoa.* On Quoy and Gaimard's plate there are three other species figured namely *S. splendens*, Port King George, *S. macularia* Port Western and *S. longirostris*, also Port Western. There is therefore evidence that Western Port, Victoria, or even King George's Sound, W.A., might be the type locality. The ship called at Port Jackson on the voyage north, after having explored the southern coasts of Australia. The under-surface as represented in colour is pale olive buff like Victorian, not yellow like New South Wales birds.

73 ♂, 72 ♀, Emmaville, New England, 2000 ft. elevation, like 2161 but smaller and paler on the upper surface; tail tips olive—a distinct upland form.

2174 ♂, 2172 ♀, Warialda, N.S.W., like 2169, but wing coverts and secondaries lighter in color (drab instead of blackish).

2171 ♀, immature, Warialda, N.S.W., like 2174, but with short tail; crown more fuscous than grey; forehead spots obscure drab.

24055, no sex, Coolabar, Western N.S.W., similar to 2174 (loaned by Aus. Mus., Syd.).

401 ♂, Jones' Station, South-west Queensland (loaned by Dr. W. McGillivray), like 2174, but crown less grey; bill larger; 4 inch; wing 2.3; tail tips citrine.

* * *

36 (303) ♂, Levi Ranges, Cen. Aus. Upper surface more buffy olive than 2161, forehead fuscous black with fewer and smaller white spots; crown plain fuscous; wings and tail drab; breast pinkish buff; flanks yellowish; bill very large .48 in. (Type of *G. c. pallescens*, *Emu*, Vol. XXII., p. 65.)

403, no sex, McDonnell Ranges, Cen. Aus. (loaned by S.A. Mus.), like 36, but feathers of crown with grey fringes and forehead spots larger; breast deep olive buff; tail tips with more white.

402 ♀, Charleville, Q'ld. (loaned by Q'land Mus.), like 36, crown showing much attrition; lower back with a wash of citrine; under surface darker across breast (buffy citrine)

* * *

508 ♂, Beaconsfield, Vic. (R.A.O.U. Coll.), like 2161, except that under surface differs; throat and under tail-coverts buff; breast buffy olive; flanks chamois; tail tips buff.

2190 (689) ♂, Springvale, Vic., similar to, but larger than 508; under tail-coverts fringed with yellow.

2191 (24) ♀, Cheltenham, Vic., similar to 508, but slightly less grey on crown.

28335 ♀, Kalong Ck., Vic., probably immature, like 508, except that forehead spots are obscure dirty white; under surface olive buff; slightly darker on flanks; under tail-coverts whitish. This mounted specimen in Nat. Mus., Melb. is almost identical with the figure of Quoy and Gaimard's type.

D205 ♂, D206 ♀, Swansea, Tas. (loaned by Tas. Mus.), similar to 508, but larger birds like 2190, wing 2.3 in.; bill .4 in.

302, no sex, Tasmania, under tail-coverts fringed yellow like 2190.

2188 (933) ♂, Launceston, Tas., like D205, but crown and flanks darker as in 2175.

* * *

2175 ♂, Lower Plenty, Vic., somewhat like 508, but crown is fuscous (see 403), with grey fringes to the feathers; flanks are much darker isabella color.

2189 ♂, Selby, Vic., like 2175, crown mainly fuscous; but flanks very dark, the color meeting across breast; feathers of lower throat and breast distinctly fringed with brown.

74 ♂, Parwan, Vic., a grey crown, like 508, but dark flanks like 2192.

2192 ♀, Parwan, Vic., a fuscous crown and dark under surface, similar to 2189.

508A ♂, Melton, Vic. (R.A.O.U. Coll.), similar to 2189.

508B ♂, Melton, Vic. (R.A.O.U. Coll.), like 508A except that crown is grey like 74 and 508. (Two other males taken at Melton in R.A.O.U. Coll. have feathers of crown half grey half fuscous. All these birds from Melton and Parwan have very marked dusky fringes to feathers of throat and breast.)

* * *

2181 ♂, 2183 ♀, Kow Plains (Cowangie), N.W. Vic., somewhat like 508 but smaller and lighter on under surface; crown fuscous faintly edged with grey; forehead black, a few feathers tipped white; throat white; tail tips white. (Types of *G. c. mallee*, *Emu*, Vol. XXII., p. 66.)

117-8-9, no sex, Raak, N.W. Vic., three spirit specimens are like 2181, but even more fuscous on crown and more brownish on back.

75 ♀, Grange, S.A., like 508, except that the whole under surface is much lighter; flanks buff; under tail-coverts white; tail tips buff.

76, no sex, Port Germein, S.A., as with 401, crown more fuscous than 2161, flanks and under tail-coverts yellow.

77 ♂, Port Germein, S.A., similar to 76, but under tail-coverts only fringed yellow.

* * *

79♂, Ellensbrook, W.A., like 75, but crown fuscous, throat, abdomen and under tail-coverts white, tail tips with much white.

78 ♂, Bayswater, W.A., similar to 79.

300, no sex, West. Aus., like 79, but flanks lighter with a faint tone only.

80 ♂, Broome Hill, W.A., like 79 but lighter; very large quantity of white on tail tips.

82 ♂, Moora, W.A., somewhat like 79 except that upper surface is darker, forehead feathers sparsely tipped white; flanks and under tail-coverts distinctly yellow; breast buff. (Type of *G. c. westernensis, Emu,* Vol. XXII., p. 65.)

81 ♂, Moora, W.A., similar to 82, bill large, .4 in.

* * *

250♂, Broome Hill, W.A., like 79 and 80 but crown mostly grey, not fuscous; flanks darker buff.

252, no sex, Albany (King River), W.A., similar to 250; tail faintly edged white; breast pinkish buff; under tail-coverts white.

251, no sex, Lake Muir, S.W.A., similar to 250.

2187♀, 2186♀, Stirling Ranges, W.A., both similar to 250.

97♂, 96 ♀, Wilson's Inlet, S.W.A. (Coll. late A. W. Milligan), like 250, but slightly darker on flanks and breast; forehead spots very large; throat, abdomen, and under tail-coverts white; breast and flanks buff; a delicate pinkish tinge suffusing the breast.

2185♂, Zanthus, W.A. (Trans-Continental Railway), a dark shade of plumage entirely different to others though nearest to 97 in general appearance. Back deep greyish olive; forehead black with large white spots; crown grey with wide dusky fringes; rump olive green; tail tips dusky; throat and abdomen white; breast and flanks buff; under tail-coverts whitish, the longest feathers having fuscous blotches; bill strong, .4 in.

Note: I am indebted to Mr. J. A. Kershaw, National Museum, Melbourne, for the opportunity of examining the above skins. Where not otherwise stated the specimens are in the "H. L. White Collection" in that institution. I have also to thank Mr. Edwin Ashby, Adelaide, for the loan of 10 skins which are shown with numerals below 82, and others who have obligingly sent skins for examination.

REMARKS.

If we accept Port Jackson as the type locality, then we will take skins 2161 and 2162 to be the typical race, though type itself may reasonably be labelled an immature bird (see 28335) and therefore unfavorable. It will be seen that there is a brighter race to the north in New South Wales and South Queensland, skins 2169 and 401. This is *G. c. leighi,** "having under parts washed with pale yellow instead of buff especially on the flanks, under tail-coverts bright yellow. Habitat Lithgow, N.S.W." Yellow under-tail coverts persist in Queensland, Central Australia (restricted areas only) and appear on the old land surfaces in South Australia 76, and again in Western Australia 82. (See map *Emu,* Vol. XXIII., p. 29.) Material from the interior regions however is scarce. The birds probably existed right across the continent in bygone times but geologic change has removed this species from all but the more favoured portions. Specimens from southern New South Wales and northern Victoria are not available for comparison.

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*Ogilvie-Grant Brit. Orn. Club Bull., XXIII., p. 73.

Then come typical southern Victorian and Tasmanian birds with darker flanks, chamois and isabella in colour. In these the colour meets across the breast making a dark and conspicuous patch. Some birds have typical grey crowns, others particularly in open country are more fuscous. It is noticed that the crown in one district, Parwan, Vic., changes from grey to fuscous, losing the grey crescents and dusky fringes for grey edges only (see 74 and 2192). Evidently in southern Victoria there are two types of crown. These also have the darkest under surfaces of the whole series. In north-west Victoria (Mallee), a region much isolated from the old land surfaces and therefore an unusual place to find this species*, the fuscous crown only is found. In South Australia where a tongue of highland connects *via* Broken Hill with Queensland the yellow under tail coverts appear (76). One S.A. skin (75) shows the white throat and abdomen approaching West Australian forms.

There is of necessity a gap between east and west owing to the incidence of the desert lying to the north of the Great Australian Bight. Nevertheless, it is remarkable to find a likeness between the birds on both sides of this barrier, and this is rendered still more noticeable by the fact that both grey and fuscous crowns appear in the west as in the east. Specimens from Wilson's Inlet and also from Stirling Ranges, in the south-western corner of Australia, show grey crowns, while further north the fuscous crowns occur. In one district, Broome Hill, is a wide contrast between 80 and 250 both in crown and in under surface. A skin from Zanthus, W.A. (East-West Railway), 2185 is a most unusual tone of plumage (greyish olive) but has a grey crown.

The whitest under surfaces of the whole series (also the greatest amount of white on the tail tips) is seen in skins 80 and 300, W.A.†

Individual variation is frequently noted. The female of a pair of grey crowns may usually be distinguished by having less grey than the male, while in fuscous crowns the female may have fewer white spots on the forehead.

With a large series of skins it becomes apparent that certain characters show regional variation, the main lines of which can be defined. There are several characters sufficiently marked to warrant close attention.

Forehead and Crown.—The forehead is black to fuscous, the white spots on the tips of the feathers being more or less in number, usually from 12 to 18. The crown is the feature of greatest interest. The crown of the type locality, fully matured, is grey, this colour extending well down on the hind neck before grading into the colour of the back.

**G. chrysorrhous* has been noted at Lake Boga and Yarrawonga, Vic., far out on the Tertiary plains where obviously it has followed down the box and redgum flats along the rivers.

†A nestling examined at Kilsyth, Vic., Sept. 7th, 1922, about three weeks old, had tufts of down on sides of head and forehead spotted buff; crown fuscous; wing feathers and tail edged olive; throat buff; breast and flanks chamois; abdomen white; under tail coverts yellow.

In certain interior or drier areas a change in crown is noted from grey to fuscous. The change in tone is to the eye a very marked one, especially as the contrast is often increased by fewer white spots on foreheads of birds with darker crowns. But the change of colour is one of degree only. All the feathers of a grey crown have fuscous bases, which, however, are not visible. The grey covers a large half circle on the visible portion of the feather, and usually there is a dusky outer fringe.

In the fuscous crown, the grey has disappeared from the feather excepting on the edge only, so that the fuscous of the base is the predominating colour of the feather, and consequently of the crown. There are skins which show intergradation, but the presence of the dusky outer fringe may be considered the distinguishing mark of the grey crown.

Abdomen and Under Tail Coverts provide the greatest amount of variation and fall into three groups, yellow, buff, and white Coverts of a bold citron yellow appear in New South Wales, go westward into McDonnell Ranges and parts of Western Australia, and traces are found in South Australia. The yellow fringes noted in some birds are remnants of this original character. Buff under coverts occur in Victoria, Tasmania, and South Australia. White coverts appear in South Australia and are most plentiful in West Australia. The abdomen and usually the axillaries follow the same general colour of the under tail coverts.

Wing Formulæ.—The respective lengths of the primary feathers of the wing are not often taken into account when dealing with species and subspecies, although this is a recognised standard in generic and family relationships. There are consistent differences in the wings of certain races of *G. chrysorrhous.* The Tasmanian race occupies the same relative position as the Victorian.

The hill form 508 Beaconsfield is small in the wing. Victorian coastal lowland forms however, 689, 24, 28335 are larger and almost identical with Tasmanian, as an average of six specimens of each shows, viz :

	1st	2nd	3rd	4th
Victorian	0.66	1.5	1.75	1.78 inches
Tasmanian	0.68	1.5	1.75	1.76 ,,

* * * *

The important factors in the variation of plumage can be set down plainly :—

Upper Surface.

A. Crown and hind neck grey with dusky fringes to feathers.

B. Crown and hind neck fuscous with grey edges to feathers.

Under Surface.

C. Throat white, abdomen yellowish, flanks and under tail coverts citron yellow.

D. Throat and abdomen light buff, breast and flanks buffy olive, under tail coverts light buff.

E. Throat and abdomen white, flanks cream buff, under tail coverts white.

By reading the factors which denote the variations of under surface C. D. E. in conjunction with either A. or B., it is plain that no less than six races can be identified. This may be considered a fairly practical sub-division of the species, showing the true sub-specific differences.

* * *

Races or Subspecies.—On the basis of the above sub-division, the type race is A + C, with a small form on the uplands of New England, a brighter kind *G. c. leighi*, Grant, and a still brighter one from the Gulf of Carpentaria. (*G. c. normantoni* Mathews, A.A.R., Vol. II., p. 77.)

Westward is the continental interior race B + C, *G. c. ferdinandi* Mathews (B. of A., Vol. IX., p. 473) with a southern coastal form *G. c. addendus*, Mathews (A.A.R., Vol. I., p. 44). Of this *G. c. pallescens*, Campbell, is the extreme pallid form and *G. c. westernensis*, Campbell, the western coastal variety. All have yellow in the under surface.

Then comes A + D the common Victorian race, *G. c. sandlandi*, Mathews (Nov. Zool., Vol. XVIII., p. 351), with its insular variety *G. c. leachi*, Mathews (*ibid*) and its offshoot in South Australia *G. c. perksi*, Mathews (*ibid*).

The race B + D comes in between ; two varieties are found on the geologically younger land surfaces of Tertiary age, *G. c. mallee*, Campbell, a white-throated bird being in north-western Victoria, and a distinct form having the darkest under surface of the series being on the open plains near Melbourne. These are mainly buff on the under surface.

The race A + E is in Western Australia and is *G. c. multi*, Mathews, (Nov. Zool., Vol. XVIII., p. 351), with a lighter form which appears to be the more common coastal bird, also a dark grey offshoot at Zanthus.

Lastly B + E is the race further north in Western Australia, *G. c. pallidus*, Milligan (*Emu*, Vol. IV., pp. 3 and 9), and marks the lightest under surface of all which, however, grades towards the darker flanks and grey crown of the south west. These two races are mainly white on the under surface.

The dominant races of the series, therefore, appear to be three :— *G. c. chrysorrhous*, habitat, most of New South Wales, Queensland, restricted portions of Central and Western Australia and South Australia.

G. c. sandlandi, habitat, Victoria, Tasmania, and Mt. Lofty, S.A.

G. c. pallidus, habitat, Western Australia.

Meliphaga Notata, alias " Jacky."

By A. H. CHISHOLM, C.F.A.O.U., Sydney.

LOOKING through my file of the *Emu*, recently, I came upon various notes and queries relating to a little-known Honeyeater, and have put them together for comment in the light of some personal experience.

The first observation of interest is contained in a paper by Mr. A. J. Campbell, on " Birds of Rockingham Bay District," in 1917 (p. 106). There a query is raised concerning two species of *Meliphaga* (= *Ptilotis*). Mr. Campbell and Mr. H. G. Barnard, it seems, experienced difficulty in adjudicating between *M. lewinii*, the common Yellow-eared Honeyeater, and *M. notata*, the Yellow-spotted Honeyeater. They had an impression that certain Honeyeaters observed on the lowlands near Cardwell might be *M. notata*, but the only specimen taken proved to be *M. lewinii*. So they referred their notes on the subject to the latter species, and added the question, " Can the commonly-reputed *notata* of collectors, after all, be a northern form only of the widely distributed *lewinii* ? "

The next allusion to this case—or a case in affinity—appears in Vol. 18 of the *Emu* (1918, p. 142), in a review of the late E. J. Banfield's third book, *Tropic Days*. Here it is suggested that it would have been interesting had Mr. Banfield given the name of the "cheeky" Honeyeater that invaded his premises after ripe bananas. " Possibly," says the reviewer, " it was a northern variety of the Yellow-eared Honeyeater (*Ptilotis lewinii*)."

Now, the point in taking these two notes in conjunction lies in the fact that *M. notata*, of the Rockingham Bay district and further north, is certainly a good species (not merely a form of the Yellow-ear) and in the fact that this is the " cheeky " Honeyeater, of *Tropic Days*. I came to know the enterprising bird, when visiting Dunk Island in 1921, under the familiar name of " Jacky." He was quite a member of the Banfield family. Having a particular fancy for ripe bananas, he would fly, frequently and freely, into a shed adjoining the kitchen and help himself. And what a protest arose if the door chanced to be closed !—then the placid air of the isle was rent by the indignant shrilling of the bird.

As to the formal identity of " Jacky," Mr. Banfield was at sea ; he had questioned a couple of previous ornithological visitors to the isle, he said, but they could not be at all sure of the species. For myself, I placed the bird as being a member of the group of Honeyeaters whose diet seems to be almost entirely frugivorous, and which lay eggs with a pure white background—as distinct from the pink background of the nectar-lovers' eggs. It was smaller than the common Yellow-ear, lacked the vivid ear-tufts, and was less strident in voice. This much was noted as " Jacky " flitted about the house. Later, I took a specimen in hand when visiting the mainland opposite the island—a few miles north of Cardwell. A nest was built, about four feet from the ground, in a small bush beside a path. Never having been disturbed by the few people who passed that way, the brooding bird was perfectly tame, and I had no difficulty in lifting her from the cradle. Measurements and color notes were secured, the detaining hand was opened, and the puzzled bird flew off back to the scrub. These observations were sufficient to decide the point; the bird was undoubtedly *M. notata*,* and specifically distinct from *M. chrysotis.*

The latter conclusion, by the way, was reached by Mr. Campbell in 1920, for in the *Emu* of that year (p. 63) he inferentially answers his own Cardwell query in the negative. Commenting upon skins obtained for Mr. H. L. White on Torres Strait islands, he says that "*P. notata*, besides being smaller, is lighter-coloured and more yellowish on the under-surface than *P. chrysotis*." Certainly, however, it is curious that these closely-related birds should "rub shoulders" as they do in the Cardwell district, though, for my own part, I did not see any Yellow-ears there, whereas the Yellow-spotted bird was fairly numerous on Dunk Island.

It follows almost as a matter of course that nests and eggs in both cases are much alike. The dainty cradle of *M. notata* had the same soft lining that one finds in the nests of the common Yellow-ear, and the eggs had that white background so distinct from the eggs of Honey-birds generally. I regretted being overtaken by darkness when inspecting the nest, for the trustful bird was a most inviting subject for photography. As matters were, my interest in the subject caused me to be marooned on the mainland all night,—at which stage it was rather cold comfort to reflect that this was the spot made famous by Macgillivray of the *Rattlesnake*, and other early naturalists.

It remains to be added that when, after returning to Brisbane with the description of the bird and fixing its identity, I notified "Beachcomber" Banfield on the point, he was only politely interested. "So," he wrote, "our 'Jacky' is officially known as *Ptilotis notata*. We shall still call him 'Jacky'!"

Bird Friends of a Kangaroo.—There are two little birds that come into the garden to a pet "Joey" kangaroo. They sit on the kangaroo and scratch and peck busily, the kangaroo seeming quite pleased to have them though they pull hairs out and scratch violently. They are not very tame and we have not been able to get a good look at them nor can we find them in Leach's Australian Bird Book. They have a strong bill like the finches, but are smaller than the Spotted-sided Finch and the Double-banded Finch which are plentiful here. They are greyish brown, very much the colour of the kangaroo. This kangaroo will not allow the Wagtails or other birds to come near him, but seems very friendly with these birds—the children call them "Joey's birds"—and none of us have ever noticed them before.—C. MAY WRIGHT, Wongwibinda, Armidale, N.S.W.

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*A coloured plate of M. *notata* appears in the *Emu*, Vol. 20, Pl. 5.

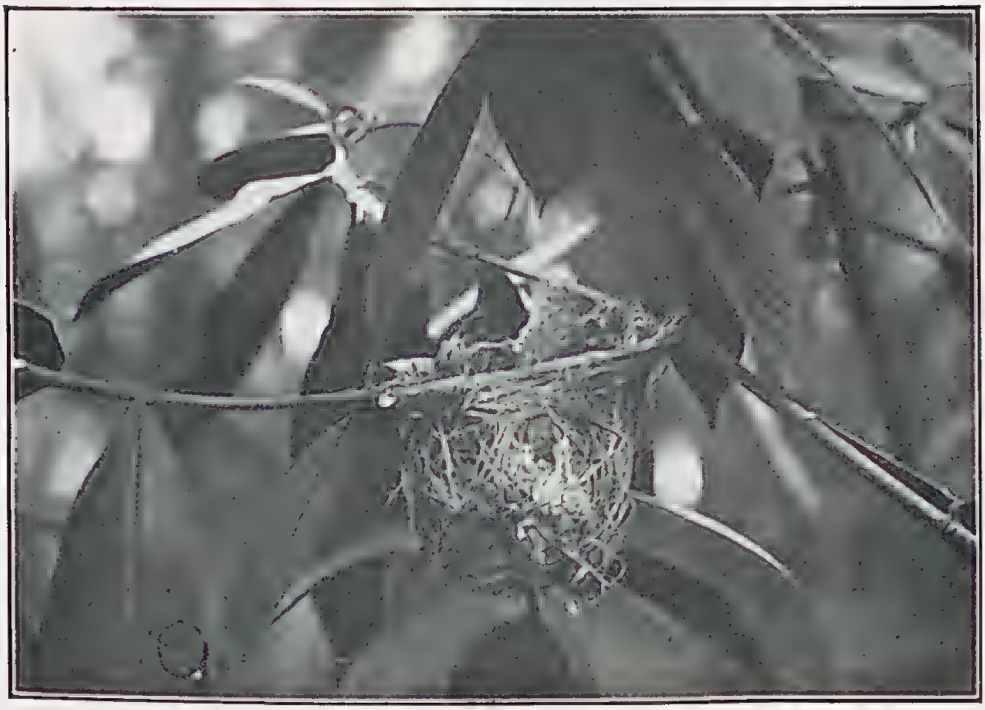


FIG. 1.

NEST (*in situ*) OF THE YELLOW-SPOTTED HONEYEATER. Although taken at dusk, the picture illustrates the dainty nature of the nest.

Photo. by A. H. Chisholm.

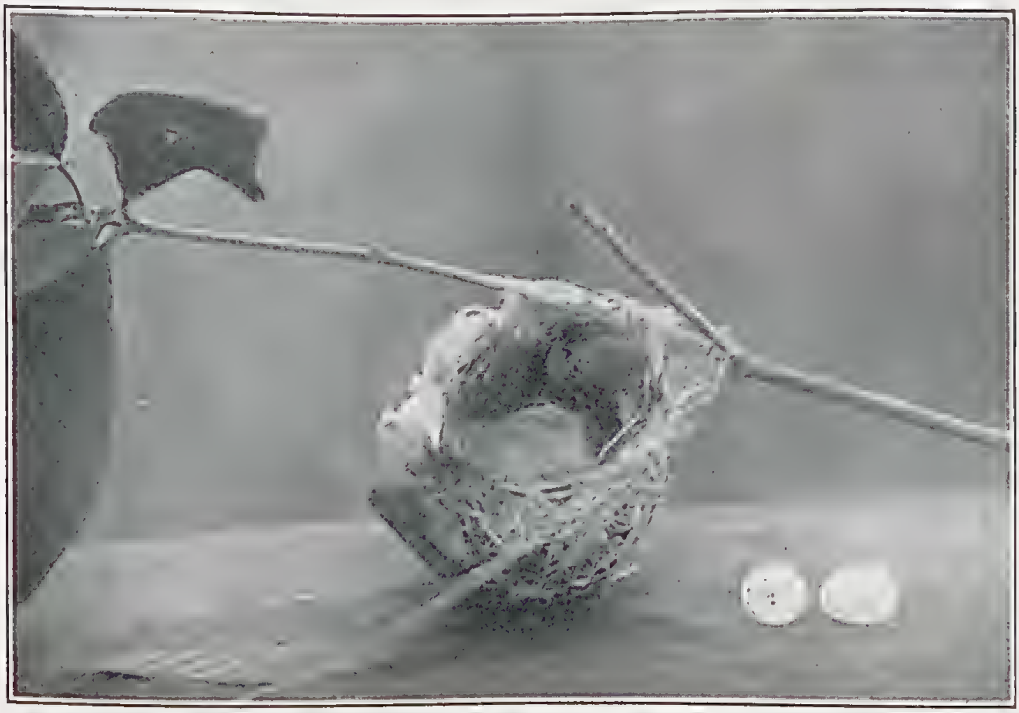


FIG. 2.

NEST (showing soft lining) AND EGGS OF THE YELLOW-SPOTTED HONEYEATER.

Photos. by A. H. Chisholm.

NATIONAL MUSEUM MELBOURNE

The Crow.

A PROPHYLACTIC BIRD.

By A. H. E. MATTINGLEY, C.M.Z.S., Melbourne.

OF the work performed for man in Australia by birds none is more noticeable, though unfortunately but little recognized by us, than that accomplished by our crows or ravens. Their attainments were first recorded in the Old Testament, in which the raven is the first individual bird mentioned.

Noah's honoured though too voracious messenger did not re-enter its former home, though perchance it returned to perch on the roof of the ark. Later on, the raven was entrusted with the high honour of feeding Elijah the Prophet.

According to the early Christian poet, Sedulius, this dark-robed bird expiated those sins on land that it had perpetuated in the flood, and thus entirely rehabilitated itself.

Most persons have been unfortunately, though innocently, taught through the medium of verse, prose and pictures to regard the crow as something ill-omened or repulsive, owing to its penchant for carrion, and its occasional weakness, when tempted by the opportunity presented to it, to commit an assault on the eye of some prostrate ewe or lamb, probably believing them to be moribund, or to steal the eggs of birds and reptiles. Certain it is that it does some damage, but not of such a widespread nature as to have merited such odium. More assured it still is that it does a vast amount of good, and that its virtues far outweigh its vices. In fact its character is not so black as its livery.

Like the vultures of the tropics, which sweep out and purify the towns before the inhabitants rise, and before the powerful sun's rays stimulate the masses of garbage, thrown out without due regard to sanitary requirements, into a festering mass of putrefaction and disease-giving germs, so the crows and ravens, with wonderful regularity, day by day, traverse our vast Commonwealth and dispose of incalculable quantities of material that would otherwise form a potential source from which a never-ending stream of toxic bacteria would flow to prey upon both human and other animals, and which would bring misery and death in its wake. Their good works for us as preventers of pestilence can therefore be likened to the efforts of those scientists engaged in the laboratory preparing vaccines or anti-toxic sera to combat and prevent the devastating effects of scourges like plague, smallpox, anthrax and rinderpest, with a view to alleviate the sufferings of humanity generally.

Just watch the crows and ravens flocking to the banquet on the loathsome carcases of our sheep and cattle strewn around on every hand, which have expired during a drought, through want of grass, or which have been stricken down by red-water fever, due to the tick pest or other causes.

Without compunction, and with decency and propriety, observe the corpses vanish.

In a moment a frightful mass of putrescence which man has shunned has re-entered the pure and wholesome current of universal life, and thus their action has been truly prophylactic. Do they possess any special adaptation which makes them immune to virulent germs ? Have any researches been made in this direction ?

Little do we realise that the removal of decaying animal matter by crows prevents the undue increase of the blowfly—a pest which is a carrier of disease to our homes, and the loss of money also to our pastoralists through the damage to the wool of their sheep when " blown " by flies. Licensed by nature these birds act as scavengers principally in the country districts.

Reliability is their motto ; they never go on strike, and all they desire is to be left without interference to do their self-imposed task for us.

What would countries like India and Egypt have done if they had not had such birds as the adjutant, vulture and crow to cleanse their cities of offal.

Do we fully comprehend why these birds have been placed on this universe with us, and why it is passing strange that the more useful they are to us the more odious they appear to seem ? They purify as if with fire, turning the corrupt into the incorrupt on land, just as certain gulls do on the sea and shore.

In America, the crow and the raven are, strange to say, recognized by some as an aid to the fisheries. At certain times of the year, there, as here, they repair to the beaches on the coast and devour star-fish, the known enemies of the oyster and whelk beds. These creatures get astride the shellfish and devour the succulent contents of the shellfish's body.

Failing putrid carcases, crows and ravens feast upon myriads of noxious insects, grubs, and caterpillars. The crow is one of the few birds that attacks caterpillars. Doubtless these creatures, which demolish enormous quantities of grass, or otherwise spoil our pastures through fouling them, have a nauseating flavour or are otherwise repellent. When they get the chance they account for small rodents, such as field mice, and immature snakes are also readily taken.

In ancient times the crow was a sacred bird, even now in Egypt and India it is revered by the natives, despite the fact, stated by Surgeon-General C. Ryan, of our Commonwealth forces, that he has seen it steal their milk by milking their cows surreptitiously. This is accomplished by the crow whilst the cow stands feeding amongst the herbage jumping up under the cow's udder and seizing a teat it its bill ; by hanging on and then dropping downwards it causes a drop or two of milk to be expressed into its throat. This act is repeated until the crow is satisfied.

Old shibboleths remain and are still perpetuated, and even now we may see pictures of recent production portraying a witch with a black raven in association to further aid the expression of something ill-omened or uncanny. This is at least unfair to our feathered friend, although perchance it acted the part of sexton in olden times when it picked the meat from the bones of the corpse hanging from the gibbet. The diet of a crow is as varied as its appetite is constant, and vegetable delicacies in the shape of different varieties of fruit, both cultivated and wild, and even green peas, have been known to be devoured by it on occasions. Its carrion eating habit, alas, has been the crow's undoing, and whilst it takes a toll of young rabbits captured by it alive, yet whilst fulfilling its part of purification in nature by demolishing dead animals, it falls a victim to poisoned rabbits through feasting upon their stricken bodies, although it is credited with the knowledge gained by experience that a dead rabbit is dangerous.

They are very sagacious, and have been known, when they have obtained an overplus of food, in the shape of hen eggs stolen from a farm yard where the fowls are allowed to lay their eggs promiscuously, to bury the surplus under the soil.

Scientists are divided in their opinion as to whether the Australian crow and raven are separate species of birds or are synonymous. To most persons they are known as crows. Some maintain that there is no line of demarcation between them; others separate those that have white bases to the feathers on the nape of the neck from those that are dark or slatey coloured. Others again classify the birds with white eyes as crows, others again judge them by the colour of the interior of their throats, their size, or the timbre of their voice, or shape of bill. The raven, some maintain, calls caw, caw, caw, whilst the crow, in a higher key and with lighter tone, says car, car, car-r-r.

As a pet the bird is both cleanly and amusing, and even amazingly intelligent. The late Mr. A. W. Milligan, who kept white-eyed crows in confinement stated that as a pet bird he regarded it as the most interesting and entertaining of all. It possesses a keen intelligence, and is easily domesticated and affectionate, It is a veritable " nigger minstrel " of bird life, with its shining black dress, its droll attitude, unlimited " patter " and the facility with which it showed the whites of its eyes.

Do Birds Rear a Second Brood in a Season ?

By J. NEIL MCGILP, Adelaide.

I HAVE noticed that writers in the *Emu* often refer to a second brood for the season. I have always thought that many of our birds in a good season had a second nesting period and with a desire to get proof of it I have taken careful observations of certain pairs of birds for the past few seasons. So far as these observations go I am now quite satisfied that few of our birds rear a second family in a season, though, if the season is suitable they will lay a second, third, and even a fourth time if anything happens to destroy the other set or sets of eggs.

In the wide open spaces of our bush lands where birds are plentiful it is not always possible to keep in touch with a pair of birds, and it is only when a pair of birds reside in an isolated spot that one can with any degree of certainty ascertain how often they nest. I have, therefore, only attempted observation of certain birds, that from strong circumstantial evidence must be considered the same pair, over several years.

One of my test cases was that of a pair of Blackbacked Magpies (*Gymnorhina tibicen*). These birds nested annually in one tree of a clump of four fine gum trees growing near a well right out on an open plain. These birds always remain near the well and at night time roost in the trees. Except during very severe heat periods these birds are the only ones near the well. In 1920 these Magpies hatched out a brood and made no further attempt at nesting. In 1921, I took their first set of eggs with the result that they built in an adjoining tree; this nest I robbed of three eggs, but the birds returned to their first nest, which they repaired, and finally brought out four young birds. In 1923, I again experimented by taking the first set of eggs and the birds built again and reared four young Magpies. In August, 1924, the birds had four eggs, which they hatched out, and my brother kept an eye on the birds, but they did not attempt a second clutch.

I know of a pair of Kestrels (*Cerchneis cenchroides*) that nest every year in a hollow spout of a Box tree, one of a small clump, that grow near a small table top hill well away from any timber. One never sees more than the pair of birds, except for a month or two after the young take off from the nest. In 1921 I took their first set of eggs, four in number. They laid four more eggs in the same hollow and reared the young. In 1923 the pair of birds reared four young from the first nest, but made no attempt to bring forth another brood.

Presumably the same pair of Owlet Nightjars (*Aegotheles cristata*) breeds every year in the same hollow of a gum tree growing in a small watercourse. In 1921 they reared only one brood of three young. In 1922 I missed visiting the hollow in time to find the young, which by all appearances, had recently left the hollow; a careful watch was kept, but the birds did not lay again. In 1923 I took the first set of eggs, but again another set was laid and hatched out in the same hollow.

A pair of Welcome Swallows (*Hirundo neoxena*) can always be found near a well; they roost in the well throughout the year, and except for a short period when they have the young on the wing with them, they are the only swallows to be found in the vicinity. These birds have each year since 1921 reared only one brood. In 1922 the first set of three eggs was taken, but they nested again in the well. The nest is invariably built between the sets of timber in the well and quite 25 feet down from the surface of the ground.

Another pair of these swallows roost throughout the year in a gas-house at the homestead on Moolawatana; they have reared one brood only each year. Twice the eggs have been taken and the nest pulled down as an experiment, but the birds laid again and hatched out three young. The young birds do not remain about the homestead for any length of time.

With a desire to experiment with some of the smaller birds, I robbed a pair of Blue Wrens (*Malurus cyaneus*) that have, until recently, been " at home " in my garden at King's Park, Adelaide. In 1920 I took their first eggs but they built again and successfully hatched out three young. In 1921 I even went further, and took the eggs of their first and second nest; the birds only built again within a few yards of the other two nests and brought out three young. This pair of wrens have only had one brood each year since I have lived here. I regret to say that this year, when they were putting the final touches to their nest they disappeared, having, I think, the misfortune to meet with death by cats which had until then escaped my attention, but have now been interred with 32 other cats (gathered during the last six years) under my fruit trees. Though I missed the wrens in October I have not yet seen any other wrens in my garden, but as my neighbour's wrens have a brood with them, I fully expect some of them later. I have never found more than one pair of wrens in my garden except when they had their young with them; they have always hunted out the young birds.

A pair of Silver-eyes (*Zosterops lateralis*) have for the last five years nested in fruit trees in my garden. I have only found them with one brood each year, though in 1922 I took their first set of three eggs; their second nest was built in the same tree and the young hatched out. In 1923 I took two sets from the little birds, but again they hatched out three young in a tree not twenty yards away; the first set was of three eggs and the second two eggs, but these were quite fresh and may have been taken before the set was complete.

Some readers may think that I have been hard on the birds. My experiments have been done with a desire to gain some knowledge of our birds and their habits and I have from my observations proved to my satisfaction that birds seldom bring forth a second family. This is quite contrary to what I hoped to prove, I have always thought that the birds produced offspring a second time in a season, especially in the interior. I know that birds in the interior always lay larger clutches of eggs in a good season. In this way I suppose they endeavour to make up for the previous bad time.

This is a subject that is well worth working out and I should like other members of the Union to quote from their observations when they have an opportunity to study the same pair of birds for a few seasons.

Grey Teal (*Virago gibberifrons*) **in the Riverina**.—The adult birds left here in December, 1924, but the fledged young were not able to fly (in some cases) till the middle of March, 1925, when they too left. This is our commonest duck, but, although still common, it is not as plentiful as it was some years back. The wholesale slaughter of our wild ducks, carried on each year, under the title of " sport," is rapidly thinning out all the species.—F. V. McMicking, R.A.O.U., Kincora, Tootool, N.S.W.

Visit to an Egret Rookery.

BY A. S. LE SOUEF, Sydney.

HEARING that Egrets and other birds were nesting near Moree I took occasion to visit the district at the end of January, 1925. I found that a fair number of birds had taken possession of a number of Acacia trees, that had recently been inundated by the backing up of the Gwydir River. This spot is about twelve miles from the Moree township, and some distance away from the large heronry visited by the late Mr. F. C. Morse and Mr. H. A. Mawhiney (*Emu*, XXII., p. 36.)

The big White Egrets (*Egretta alba*) although not numerous, stood out conspicuously, and were a beautiful sight as they moved round with their slow and measured flight, or stalked about in the long grass. Two of this species spiralled round until almost out of sight and then drifted off in a southerly direction. More numerous were the Little Egrets (*E. garzetta*) and there were also a good many of the beautiful Plumed Egrets (*E. intermedia*). The rookery, which was four or five acres in extent, also contained a few Nankeen Herons (*Nycticorax caledonicus*); Little Pied and Little Black Cormorants (*Phalacrocorax melanoleucus* and *P. ater*); two or three White Ibis (*Threskiornis molucca*) and one nest of the Australian Darter (*Anhinga novæ-hollandiæ*).

The Egrets were nesting indiscriminately about the trees, the nests for the most part being rather frail structures. A few nests contained fledgling birds, though most of the young were ready to fly. The Cormorants were together in the centre of the heronry, but the Darter was on the extreme edge. The White Ibis, which were nesting in the trees, had several young on the wing and two clutches of three eggs.

The nest of the Darter was built of fairly heavy sticks and placed about 20 feet up in an acacia tree. The old birds were wary and seldom showed themselves while we were in the vicinity. Three youngsters, one of which was about a third bigger than the other two, having outgrown the original platform, were sitting still and expressionless on a bough pretending that they were part of the landscape. On climbing up and focussing the camera on them, they promptly dived into the water and disappeared. Although careful watch was kept, neither their course under the water or any sign of where they came to the surface could be detected, but presently a faint whistling, not unlike the sound made by a tree frog, was heard in a patch of reeds some 35 yards away, and here we managed to secure the bird that appears in the photograph. It was covered in soft down, pale fawn in colour, with the wing and tail feathers just maturing. The large webbed feet, which were also fawn coloured, were a conspicuous feature. (See Plate 5, Fig. 1.)

As one waded under the nests, the young birds generally regurgitated their last meal, and this gave an interesting insight into their food. The Egrets were chiefly feeding on grasshoppers, great numbers of which were seen on the green grass at the edge of the swamp. A Nankeen Heron ejected a number of small fish (*Pseudomugil signifer*), while the Cormorants dropped fresh-water crayfish and common carp. A young Ibis dropped a mouse.

Yellowheads and Other Birds at Lake Rotorua.

By MRS. P. MONCRIEFF, Nelson, N.Z.

THAT the New Zealand birds are unique is well known throughout the world. One finds flightless birds, birds with strange bills, and birds which are neither one thing nor the other, such as the owl-parrot. One could enumerate their peculiarities at length, but to the naturalist from the Old Country perhaps the most astounding fact about New Zealand birds is that in many cases those that are found in the North Island differ slightly or considerably from their representatives in the South Island, whilst some that are common in one island are not found in the other. The owl-parrot just referred to is a bird which is rarely found north of Cook's Strait, whereas the Huia, except for a vague report that it was seen in the Nelson district, in the early days, is strictly a North Island bird.

This would not be extraordinary were New Zealand a Continent of the size of North and South America.

Cook's Strait is narrower than the Straits of Dover. Over the latter birds fly annually in great numbers when migrating, but even such a bird as the Robin (*Erithacus rubecula*) which is a stay at home bird, although we now know that it migrates partially, is the same in France as in England. The New Zealand Robin (*Miro australis*), in appearance a robin though really not one, is only 6 inches long in the North Island but 7¼ inches long in the South Island, besides which the two forms differ in song and colour. When compiling a list of New Zealand birds I was so much surprised at the discrepancy of size as quoted in Buller's famous work that I got it verified.

The Robin is not the only bird in which the forms from the two islands differ. The Whitehead (*Certhiparus albicillus*) of the North Island is represented in the South Island by the Yellowhead (*Mohoua ochrocephala*). It is curious that whereas the Whitehead is quite common in the bush round Wellington, the Yellowhead is less common in the South Island except in certain localities. There, however, they are by far the commonest birds.

" Yes they used to be plentiful, but I haven't seen any for ages " is usually the reply when an individual is asked about the Yellowhead, commonly called the Bush Canary. It has apparently vanished from round the city of Nelson although there is still a good deal of bush all round. However, a four hours' motor run will take the seeker into a place where they abound. There exists a great deal of confusion between the Yellowhead and the Yellowhammer in the minds of most people, in fact if asked whether the former have been seen recently, the majority of persons will at once tell you that they are plentiful, raising your hopes until they are dashed to the ground by the realisation that they are referring to the latter.

To those who know the difference, the birds cannot be mistaken one for the other. The Yellowhammer (*Emberiza citrinella*), an imported or introduced bird, is a Bunting, whereas the Yellowhead is indigenous and not a canary, as people believe it to be.

In colouring the Yellowhead and Yellowhammer may be somewhat similar, since both male birds have brown backs and yellow breasts, but the Yellowhammer female is a dark brown lady quite unlike her Yellowhead sister who believes in resembling her husband. Again the beak is different, the Yellowhead has a black bill whereas that of the Yellowhammer is brown, and the same difference applies to their legs. Those of the imported bird are light, those of the indigenous dark.

The most important difference however lies in the fact that although both birds are gregarious, the Yellowhammer prefers the open country, collecting in flocks round farms in the winter, whereas the native bird is a bush bird pure and simple. The Yellowhammer is mainly graminivorous whilst the Yellowhead is chiefly insectivorous. Watch both birds' flight and compare the Bunting's dipping flight with the Yellowhead's sudden dash from tree to tree or across a gully. Again the birds have quite different notes. The Yellowhammer is a glutton, discoursing continually on food, saying " A little bit of bread and no cheese." The Yellowhead thinks mainly of money, making a noise like a shilling spinning on a hard surface.

I went to Lake Rotorua on Nov. 22nd by Gowan Bridge near Murchison. The lake, a scenic reserve, is quite untouched, dense bush coming right to the water's edge, whilst the river flowing out of the lake, the Gowan, has a very rapid fall until it joins the Buller at Gowan Bridge. At the head of the lake lie two mountain ranges from whence come the rivers which feed the lake, namely the D'Urville and the Sabine. Until recently the bad roads leading to the lake prevented the advent of many trippers. What wonder that with such surroundings the native birds are numerous.

The Yellowhead, except for the Tui (*Prosthemadera novæseelandiæ*) was the commonest bird to be seen.

Wherever one went one heard their joyful song and saw the fascinating spectacle of the parents feeding their young. Both birds share in this arduous duty. Family life to the Yellowhead is not a thing to hide in a corner, but to advertise as much as possible. Hearing a peculiarly harsh call one would gaze up and see the parents hopping rapidly from branch to branch half way up a tree, followed flutteringly by the young family with much chirping and movement of wing to emphasise that they were hungry. In their way of following closely on their parents' heels, or rather flying right on to their parents' tails, I was reminded of sparrows feeding their young. There was the same confusion and bustle carried on to the tune of loud chirping. Occasionally the young sat huddled side by side on a branch waiting for the parents to return and feed them. They never had to wait long, food was very plentiful, in a few seconds something tasty was crammed down their gaping throats and they would flutter on after their parents. There is no danger of passing unnoticed a family of Yellowheads, during the upbringing of the young, once they have left the nest. One hears their voracious clamourings long before one sees them.

Even by himself the Yellowhead is a very delightful bird to watch. He is the essence of cheerfulness. I came on several solitary birds and noticed that in each case they had chosen a large tree in which to disport themselves, presumably for the great number of insects to be found in an old tree. They were usually high up, but made excursions down lower for food, always returning to the upper branches of the great tree chosen as their tower of observation.

One of these excursions brought a Yellowhead quite close to us. He took not the slightest interest in us. One would have expected him to inspect us out of curiosity or to make sure of our intentions, but he calmly turned his attention to the young sapling he was visiting, occasionally stopping to sing as if his good spirits could not be bottled up. Suddenly he found a large juicy caterpillar which he seized in his bill. The morsel proving troublesome he calmly transferred it to his claw, where he held it securely, raising it to his beak parrot fashion. This action much surprised us, as usually birds of this type put their head down and tear the foods from their claws. In his case however he deliberately put his claw to his bill, after which the caterpillar was squashed between the upper and lower mandible and shortly afterwards swallowed.

When perched on a branch the Yellowhead sits with its claws wide apart and its thighs almost touching one another much in the same way as a tame canary. In appearance he struck us as a very solidly built bird, less ruffled about the feathers than the Whitehead, and bigger, being in fact a whole inch larger than the North Island bird.

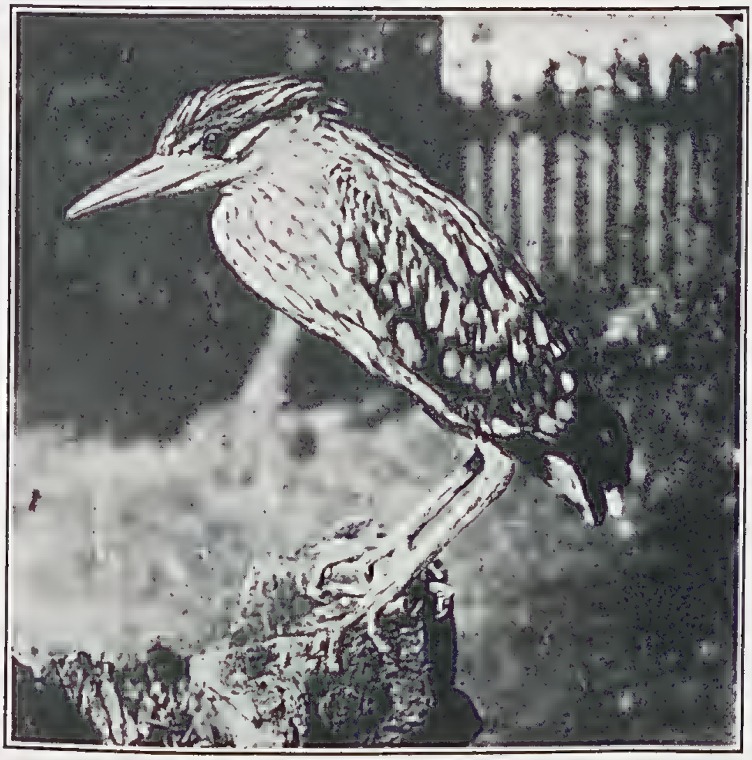
Parrakeets are also common at Lake Rotorua. They mostly seem to keep close to the lake in the high trees, clinging and hanging from them in search of food, keeping up an endless conversation. One often hears them flying overhead and occasional birds were seen on the Beau Regard track which leads over the range to the Clarence River. However, to see them in any quantity one need not go further than a few minutes walk from the new accommodation house. There, by the lakeside, one would see as many as thirty all feeding together. Suddenly, with a harsh screech one would fly off, followed immediately by its mate and sooner or later by the whole flock. One Parrakeet (*Cyanoramphus auriceps*) we watched quite close. It was scrambling about on the top of stunted beech trees, on the very top of the range. In order to watch its movements we had to move continuously and even spoke in an ordinary voice. The bird however seemed quite oblivious of our presence. One has got so used to birds starting nervously at one's slightest movement that to be ignored completely is a new experience and one which shows how little they have been molested by the lords of creation. The bird crept down one tree trunk and up another showing the yellow on the head and faint red spot above the nostrils. Although not interested in our doings it quickly looked up and answered the call of the parrakeets flying over. Finally it too flew off to a distant tree, thereby being lost to view. There is something about the little parrakeets' flight which reminds one of a flight of flying fishes, their wings appear so tautly stretched and the flapping of their wings so fast that they seem to keep them outstretched all the time. That they are here in numbers augurs well for the future. They may increase, as already since my previous article appeared (*Emu*, XXIV., p. 61) they have increased in several places and are now always to be seen up the Dun Mountain track.

Kakas (*Nestor meridionalis*) are also to be seen about the lake, but only one or two, flying with their apparently clumsy flight a great height up. One startled bird caught feeding in a gully along the Brayborne track emitted a good screech which any barndoor fowl would have envied, and departed from the decayed trunk he was investigating to the highest top of the tallest tree on a distant hillside whence he watched us, departing to a still more distant observation post as we came somewhat near. On no occasion were we able to get near these birds though we often saw them. Probably they had been shot at. I was told by Mr. Philpott, of the Cawthron Institute, that nowadays the parrakeets are also much more wary than they used to be. In the days when they were plentiful one could almost knock them over with a stick. At present they keep to the tops of trees and one seldom gets an opportunity of seeing them so close as we did.

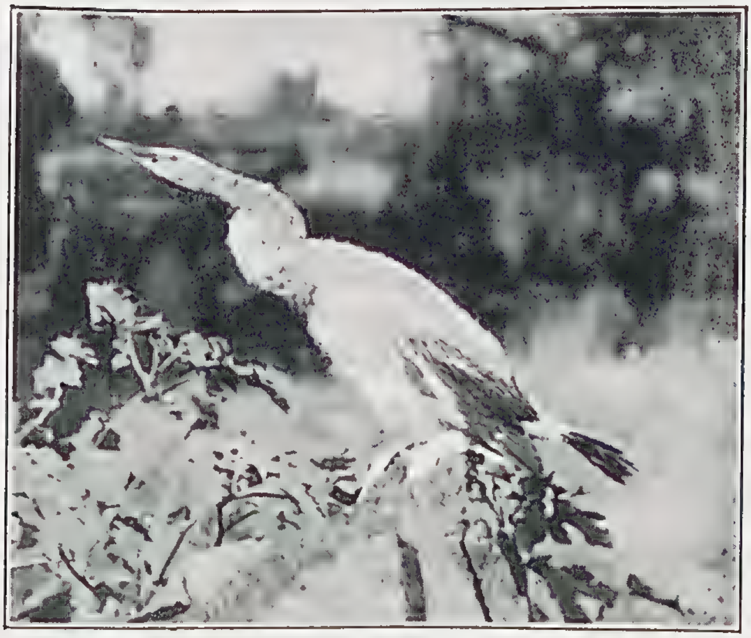
This presumably would be accounted for by the fact that only the wildest and wariest have survived, and that their children have adopted their unfriendly ways like Rudyard Kipling's "Cat that walked all alone." It is curious to note that the same thing has happened in the case of the Common White Cabbage butterfly of Great Britain. This butterfly in the days of my youth could be caught in any numbers by simply placing a hat on it. Nowadays they fly infinitely faster, as I discovered when endeavouring to exterminate a few for my mother when last in the old country.

We were able to approach quite close to the little Black Teal (*Fuligula novæseelandiæ*) with young swimming on the edge of the lake. These latter dived with a pop under the water or scooted along the surface at great speed to rejoin their agitated parents. Two got separated from their mother and rushed away wildly to be sought for and called by her later. A good example of how bad it is to disturb young water birds, which dash into the water at the slightest alarm, unless one is sure that the mother will be able to recall them. How many young birds have perished owing to being disturbed, and being carried away to certain fate by the swift waters into which they had leapt? No use for the anxious mother to call them; some may have followed her up stream, but the majority will have been carried away downstream where she will never find them. Lake Rotorua has a great variety of ducks which assemble of an evening close to the great reed beds. In every part of the lake there are small streams which percolate into the main water from the bush under overhanging vegetation, a paradise for wild fowl. It has been reported that a pair of Blue Duck (*Hymenolaimus malacorhynchus*) have been seen, whilst it is known that the Great Crested Grebe (*Podiceps cristatus*) makes its home there.

A pair of Black Swans (*Chenopis atrata*) sailed about with young. With regard to these birds I was told recently that they were cowardly enough to permit the Southern Black-backed Gull (*Larus dominicanus*) to seize their young. This may be so, but a battle recently took place



YOUNG NANKEEN NIGHT HERON (*Nycticorax caledonicus.*)
Photo. by F. V. McMicking, R.A.O.U.



YOUNG AUSTRALIAN DARTER (*Anhinga novaehollandiae.*)
Photo. by A. S. Le Souef, R.A.O.U.

at Rotorua between the Swamp Harrier (*Circus approximans*) and a pair of Black Swans. The eye witness saw the Swan beat the Harrier down under the water with its powerful wing and although he did not actually find the drowned body, he never saw the bird rise again.

The Sabine Valley at the head of the lake is celebrated for its subalpine flowers and being mild throughout the year should have a great deal of bird life. Being hard to visit owing to there being no anchorage for the launch, the lake here is 700 ft. deep, we did not visit it, but camped up the D'Urville which is very much colder. As most birds, like flowers, prefer the sunny spots, we noticed that there were far fewer birds than at the foot of the lake. These, too, had not such a variety of notes. There were however several pairs of Paradise Ducks (*Casarca variegata*) which were much agitated for fear we should molest their young. These handsome birds are the bane of the deer stalker. It is a known fact that the deer will usually be found where these ducks are as they are such keen sentries. He who wishes to approach the deer must avoid the Paradise Duck, much in the same way as in the old country, Jays (*Garrulus glandarius*) will alarm the game birds in a wood.

Once when a peculiarly agitated Paradise Duck called down curses on our heads, we watched the deer through the glasses, lift up their heads in alarm, then quietly steal away in the bushes. The deer at Lake Rotorua are too plentiful seeing the harm they do to the native plant and bird life. One doe we surprised in a natural pakihi remained rooted to the spot gazing at the intruders until a native pigeon, also alarmed, flew low over its head and scared it away.

Of Woodhens and Kiwis we saw not a sign though they were plentiful two years ago, probably the weasels and semi-wild cats have accounted for their disappearance seeing that the surroundings, with the tangled masses of decaying wood, are ideal for them.

The Bellbirds (*Anthornis melanura*) those heralds of the dawn, sounded at daybreak like a person playing the flute, as they sang in all keys running up and down the scale.

One morning we watched four Shining Cuckoos (*Lamprococcyx lucidus*) indulging in a squabble or a game of "king of the castle." They appeared all to want to perch on one branch on the top of a tree and drove one another off with much noise. They were too high up to view properly, but appeared to stay on the top until chased off into the bush where a game of " hide and seek " was played, until it was realised that another bird had meanwhile taken the coveted perch, when the game was repeated.

We were disappointed not to see Native Robins as the latter are now plentiful up the Maitai River close to Nelson and also on the Dun track and in the Pelorus River district. That they were at Rotorua when the accommodation house was built was vouched for by the proprietor, Mr. Flower, who puts down their disappearance to human beings and cats. He found their dead bodies round the hotel !

Half way up the lake lie the Shaggeries where the Black and White-throated Shags (*Phalacrocorax carbo* and *P. brevirostris*) live. Alarmed at the inroads on the fish made by these birds, many were shot when with young in the nest; however, they retired further from the shore, up hill, and are now busy rearing their young in the tree tops.

Of the small birds we saw but few Grey Fantails (*Rhipidura flabellifera*) though we heard them squeaking in the bush. South Island Tomtits (*Myiomoira macrocephala*) were numerous, also Grey Warblers (*Gerygone igata*). Green Wrens (*Xenicus longipes*) were hawking insects in the trees about the lake and further up we saw many Riflemen (*Acanthisitta chloris*) mixing with the Green Wrens.

As dusk fell Moreporks (*Ninox novæseelandiæ*) raised their cry from all sides and drowned the whistle of the Longtailed Cuckoo (*Urodynamis taitensis*). Until the very last moment Tuis perched on the top-most branches of tall trees, singing. There was a great variety of song, from that of the indifferent singer to the glories of the Caruso of the bird world.

Of the introduced birds there were really on the whole very few, though the Starlings went about in flocks and were occupying all the best holes in the dead trees. Blackbirds were not numerous, although a few had found their way to the Lake. The Chaffinches emitted a cheery " spink spink " but we only saw one Sparrow. Long may it remain so.

After a visit to Lake Rotorua one returns with a feeling of optimism about our native birds. Now that it is a scenic reserve there is every chance that they may do well, provided that those who visit the place play the game. With so many Yellowheads may it not be possible that Saddlebacks (*Creadion carunculatus*) may reappear amongst them, those kingly birds who disported themselves amongst their merry little subjects the Yellowheads. Though they are said to be extinct on the mainland is it not possible that they still exist in small numbers? Where the Yellowheads are so common there might still be a chance of seeing one. When staying on the Whangamoa, between Blenheim and Nelson, in a deep isolated gully, I found what we think was the nest of a Saddleback not more than two seasons old. It was made of coarse rush-like material, nothing else except a sprig or two of Remu. On comparing it with the nest, the illustration of which is in Buller's work, we found it to be identical though one could not prove it to be a Saddleback's nest. It is now in the Dominion Museum, Wellington, labelled as a Saddleback's nest. What other bird builds a nest like it? There is therefore the possibility of the Saddleback having been on the mainland later than is supposed.

Is it not possible that the birds may still be seen even as rumours are continually being received that the Huia (*Heteralocha acutirostris*) still haunts the Rimutakas? Very few people are able to give their whole time to bird investigation. It was only on a hurried visit to the bush that I found the Saddleback's nest. Again, how many people know the birds when they see them? They will pass them and not know what they have missed. The bird colour protection is perfect, and few people are keen enough to be really observant. What is more likely than that the king of the bush is still to be seen occasionally, but that no eyes are there to record it? We can say that a bird is extinct, but until we have searched the

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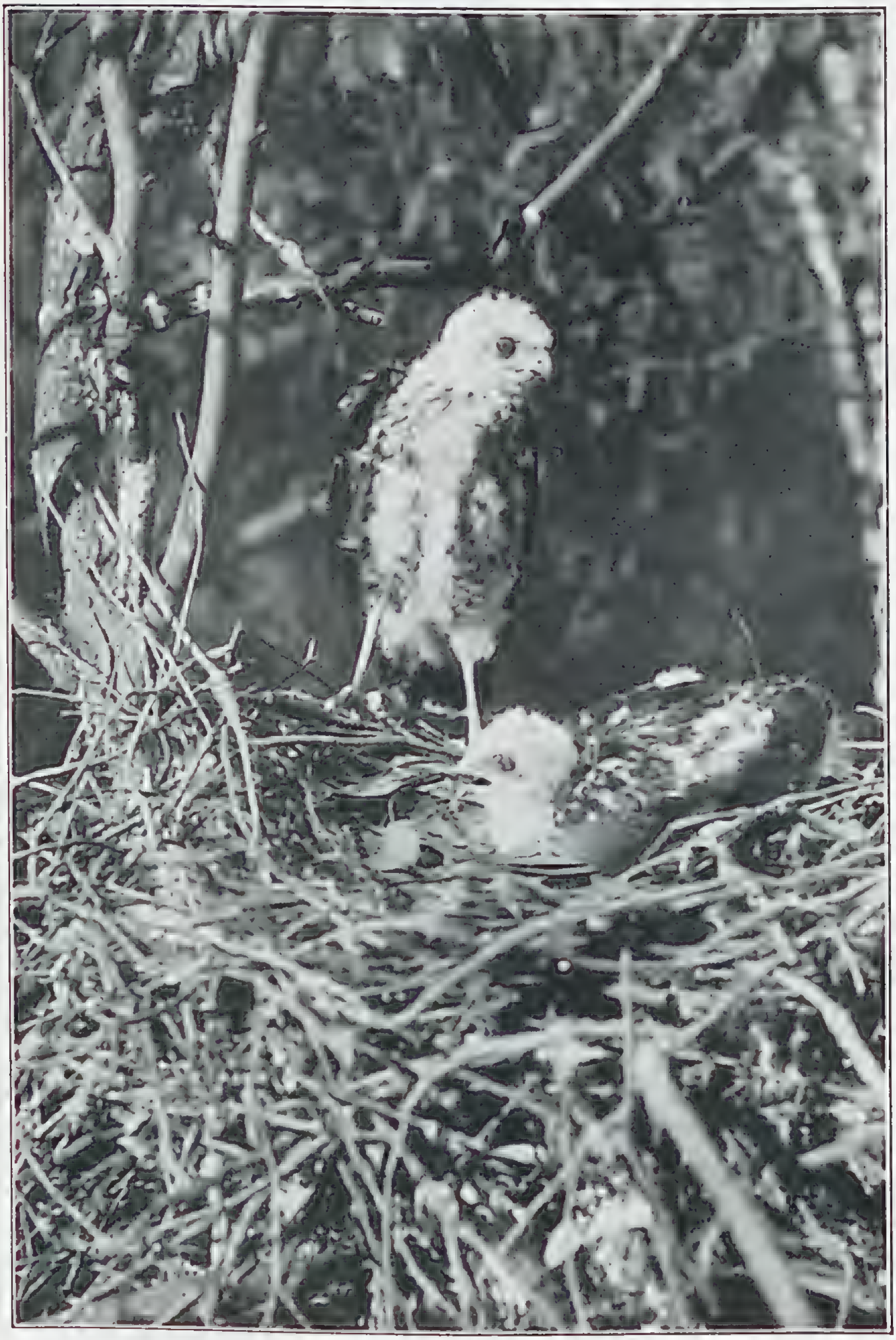


YOUNG COLLARED SPARROWHAWKS IN NEST (*Accipiter cirrbocephalus.*)
Photo. by Chas. Barrett.

whole Island with a small-tooth comb, we cannot prove that the bird we mention is extinct. "Hope springs eternal in the human breast." Would not the poet who wrote that be pleased to know that we have not yet given up hopes of seeing the Saddleback again amidst his friends the Yellowheads.

Camera Craft.

SPARROWHAWKS AT HOME.

Few nature photographers have had an opportunity to record the home life of the Collared Sparrowhawk (*Accipiter cirrhocephalus*), indeed the series of pictures secured last season by Mr. W. C. Tonge and myself, probably are unique, in some respects. Mr. Tonge, a keen observer, lives at Eltham, Victoria, where unnumbered paddocks, a pleasant little stream, and bits of almost virgin bushland provide food and shelter and nesting sites for many native birds, and some introduced species. Towards the end of October (1924) Mr. Tonge sent news that a pair of Sparrowhawks was nesting, close to his house, on Eltham Heights. A week later, we went to the nest-tree together, and photographs of nests and eggs (4) were secured. My friend had built a platform for the cameras, opposite the nest, at a height of about 35 feet. It was an easy climb, but my half-plate camera proved troublesome, among the wind-tossed boughs. The platform was shaky, and in order to focus on the nest, I had to assume awkward positions. It was tiring, and disappointing, at first, many plates were spoiled through camera-movements. Time exposures were essential, for we often had dull weather, and the nest was over arched by small boughs. Mr. Tonge, choosing his days, obtained a fine series of photographs in the eight weeks or more during which he kept the nest under observation. My own weekly visits to the Sparrowhawks' home, were less fruitful but the day before the brood took wing, I secured one rather good picture. One of the three young birds flew as I reached the platform, the others remained, but were restless. Their parents on this and other occasions were highly aggressive. Both "dived" at me repeatedly, but not together. They swept by often but a few inches from my head, and once I felt the touch of wings. The female, I fancy, was the bolder of the two, but both were very daring. Their attacks were most insistent when the eggs were on the point of hatching, and when the young were nearly ready to fly. But whenever I climbed to the nest, one bird, or both, made a "demonstration." Mr. Tonge has a full record of the home-life of this Sparrowhawk family. Writing to me on November 23rd, he said: "I have been keeping the hawks' nest, under close observation and on Wednesday morning 19th observed one of the birds standing on the nest, and, thinking that there was something doing, I climbed up and saw two creamy-white nestlings. The nest also contained, besides the two unhatched eggs, portion of the head and breast—cleaned of feathers—of some small bird, from which the parent had evidently been feeding the young, and, you would hardly credit it, the nestlings were picking at it, and their little black beaks were covered with blood from it—they were just out of the shells ! I have been able to secure several fine negatives, one has the female bird standing on the nest and looking down at her young ones ; also one standing in the nest with wings half-open, and several others."

The field notes of an observer, who is able to visit the same nest every day are much more valuable than those of a week-end visitor. I hope that Mr. Tonge's " history " of the Eltham Sparrowhawks will be published in full.—CHARLES BARRETT, Melbourne.

* * *

SCARLET ROBINS.

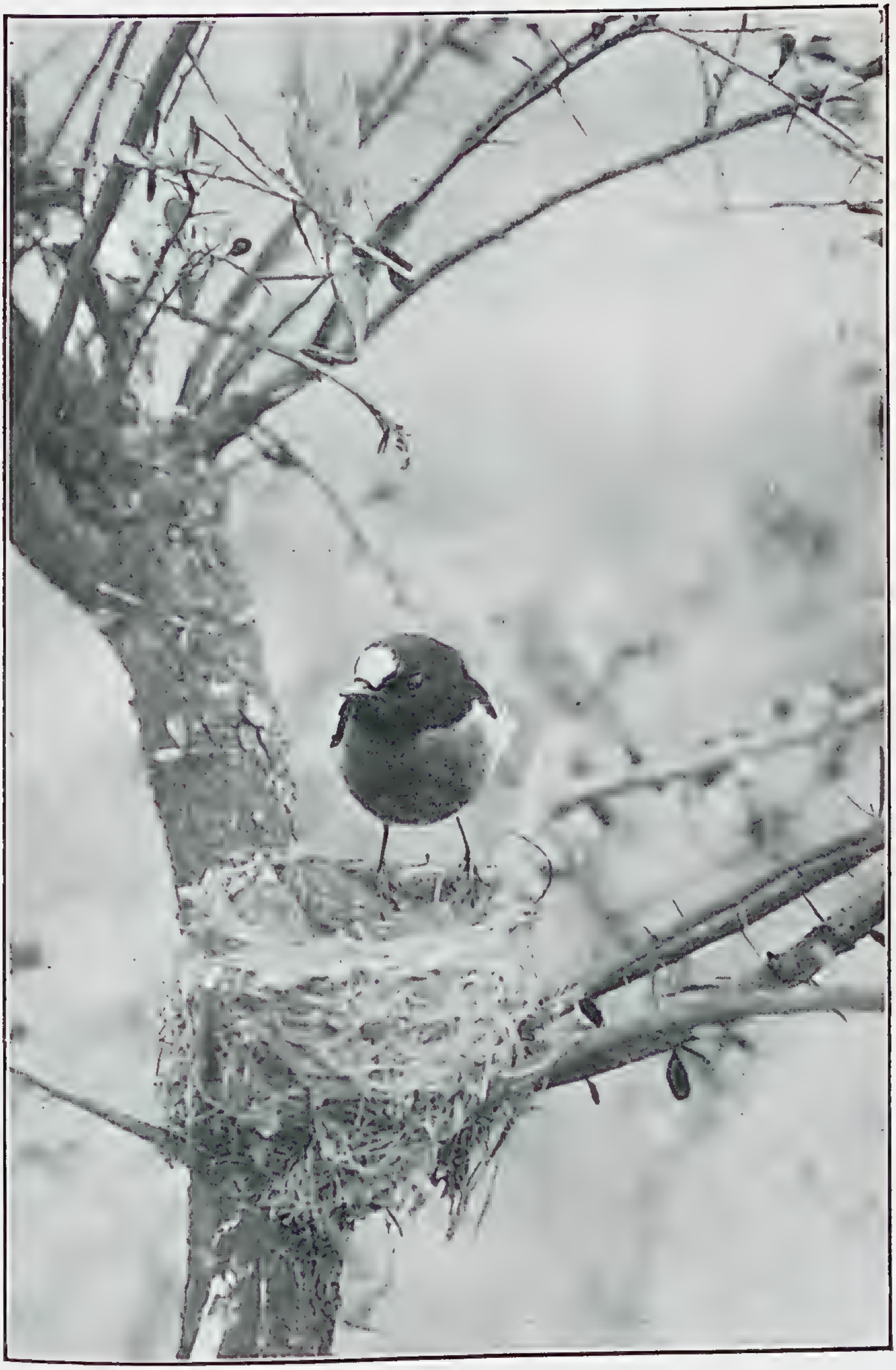
The two pictures reproduced herewith of the Scarlet Robin (*Petroica multicolor*) at the nest were taken at Lorne, Victoria. The nest was placed in the fork of a small shrub about three feet from the ground in a little sheltered hollow near the sea front. The three young were fed very persistently by the male bird, who, for this purpose, visited the nest three or four times more frequently than his mate. The picture of the female bird represents the first of three visits to the nest on the 14th October. After each visit a young one flew from the nest. The male bird did not visit the nest on this day. The young bird with its mouth open evidently expecting food, which it did not get, was the first to leave the nest, flying about 30 yards away to the parents. The picture of the male bird was taken at $\frac{1}{5}$ sec. at F.8. about three feet from the nest, and that of the female at $\frac{1}{25}$ at F.8. in bright sunshine at a distance of about four feet.—C. H. KELLAWAY, M.D., Melbourne.

* * *

FANTAIL CUCKOO (*Cacomantis flabelliformis*) AND BROWN THORNBILL (*Acanthiza pusilla*).

While watching a female Blue Wren feeding a young Bronze Cuckoo, my attention was drawn to a pair of Brown Thornbills, whose scolding led me to believe that they had a nest in the vicinity. My surmise proved to be correct, as I found the nest situated in a tangle of fallen branches and bracken fern. It contained a fully fledged Fantail Cuckoo. As the light was not sufficient to allow an attempt at taking a photograph of the Thornbill feeding the Cuckoo at the nest, I removed the Cuckoo to a more exposed position where the light would permit photography.

The Thornbills showed very little hesitation in facing the camera as the Cuckoo kept up an importunate plea of hunger, which probably encouraged the foster-parents to feed it. When being fed it did not take the food from the foster-parents, but simply opened its beak and the food was placed in its throat, which act I have attempted to photograph.—T. V. GIVENS, R.A.O.U., Canterbury, Vic.



MALE SCARLET ROBIN (*Petroica multicolor*) AT NEST.

Photo. by Dr. C. H. Kellaway.

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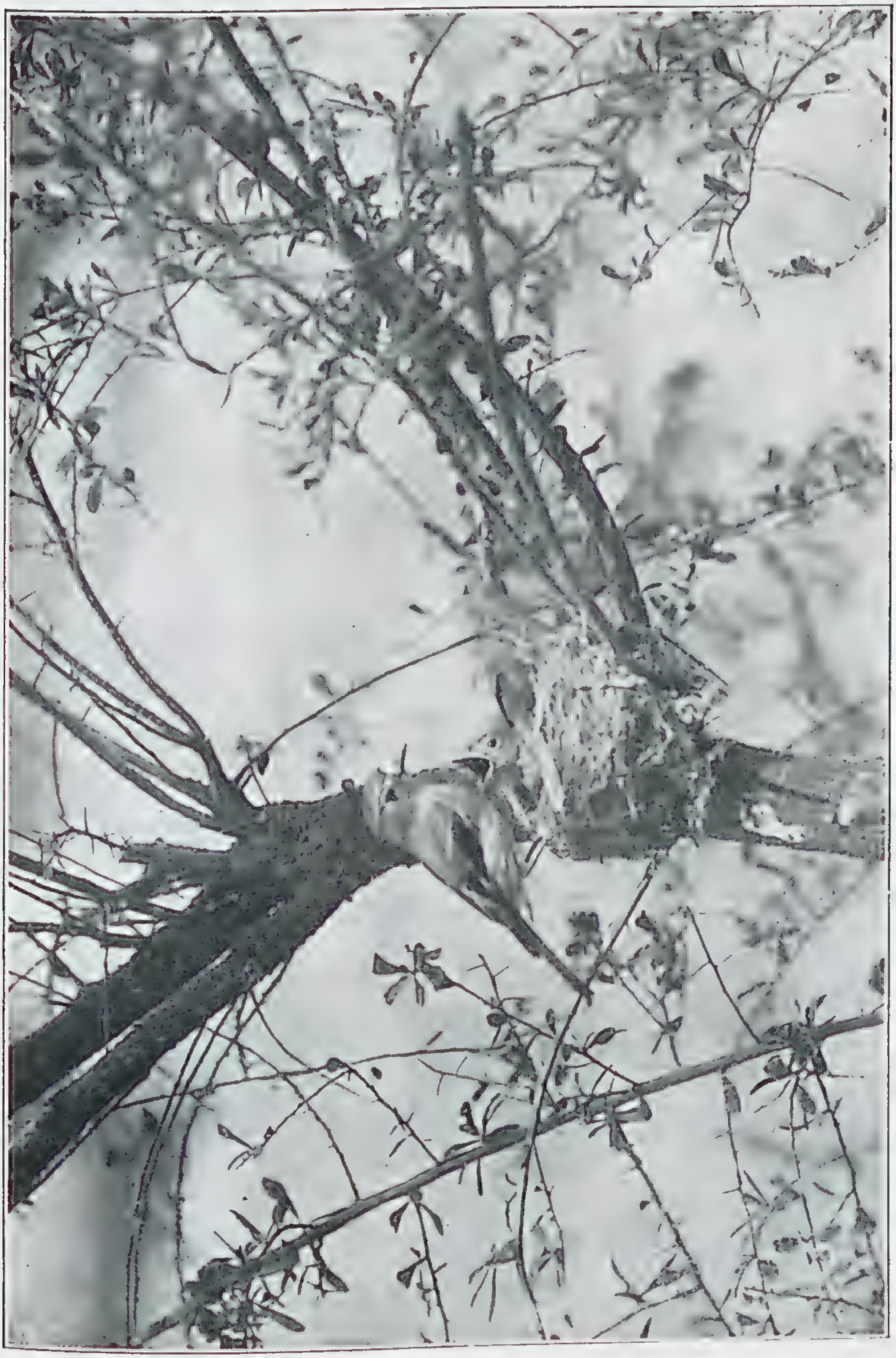
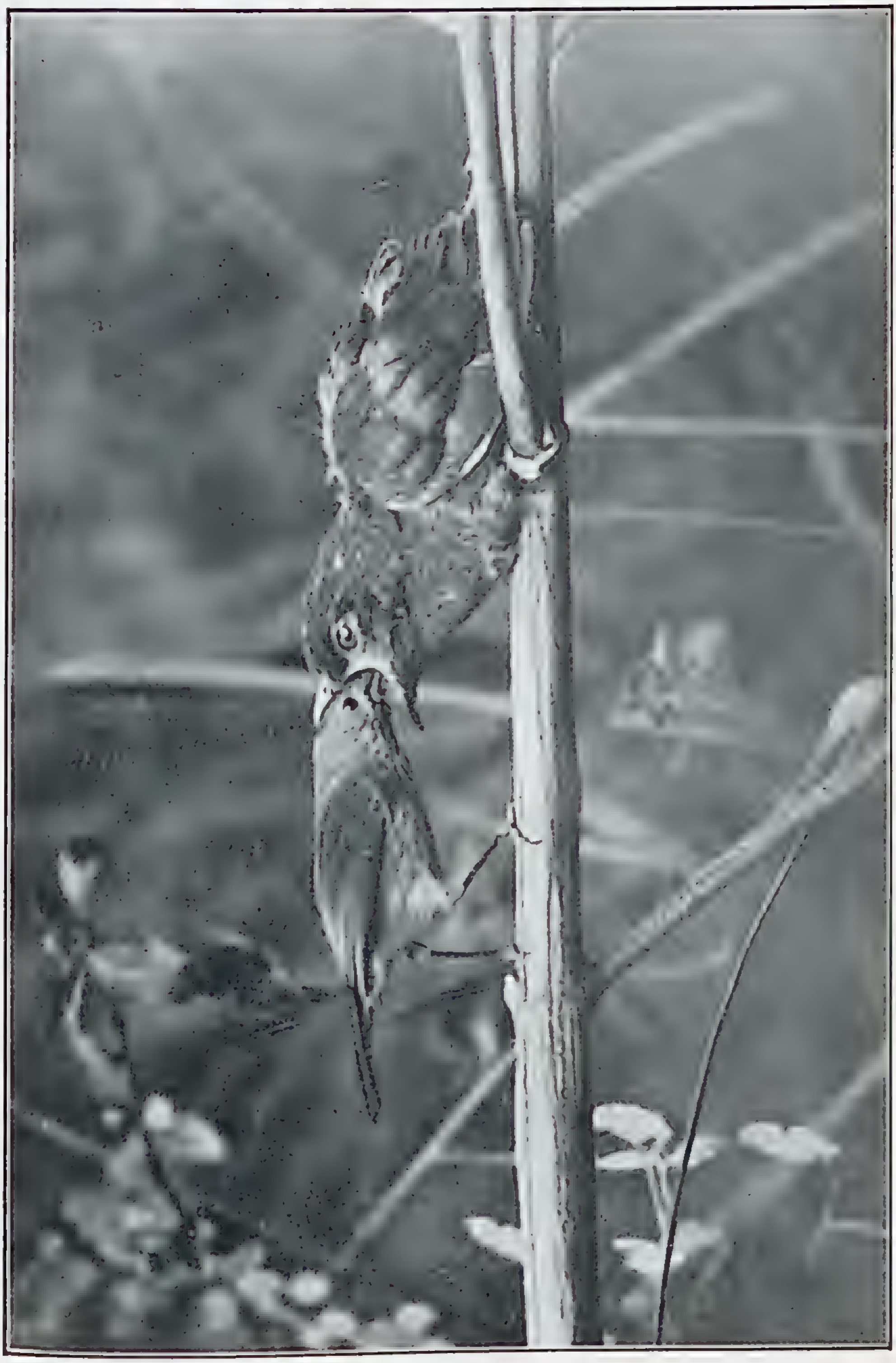


FEMALE SCARLET ROBIN (*Petroica multicolor*) AT NEST.

Photo. by Dr. C. H. Kellaway.

NATIONAL MUSEUM MELBOURNE



BROWN THORNBILL (*Acanthiza pusilla*) FEEDING YOUNG FANTAIL CUCKOO (*Cacomantis flabelliformis*).

Photo. by T. V. Givens, R.A.O.U.

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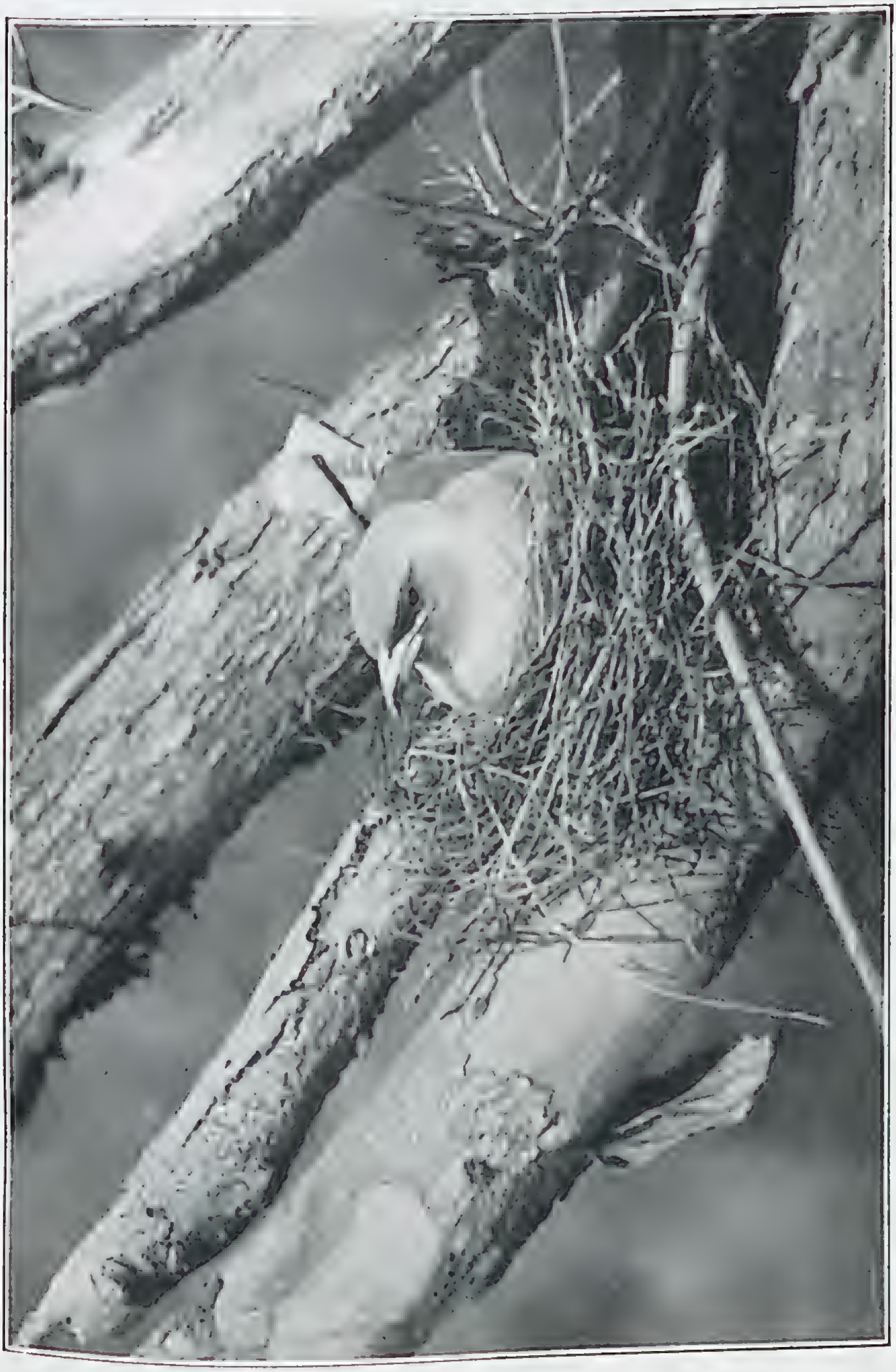
PLATE 10



MASKED WOOD SWALLOW (female) ON NEST.

Photo. by R. T. Littlejohns.

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THE "EVILS" OF BIRD PHOTOGRAPHY.

I was amused to read a statement by a well-known ornithologist in which he claimed that bird photographers caused the deaths of many birds by keeping the parents away from the nest. Evidently that gentleman spoke without knowledge or else his experience of bird photographers has been unfortunate. Perhaps, however, it may be as well to give some idea of the actual methods adopted to safeguard the subjects.

Wood Swallows are seldom trustful and the Masked species is perhaps the least tractable. So that the photograph reproduced and two others of the same bird were the sole result of eight hours' work. But during those eight hours the camera and tripod were removed or shifted further from the nest a dozen times in order that the bird should not be kept from the eggs for lengthy periods.

Young birds are considered in the same way. In very hot weather when the direct sunlight necessary for photography is likely to harm the nestlings I invariably provide shelter in the form of a bunch of leaves attached to the end of a springy stick. The shelter is drawn away by means of a second cord only when the adult bird approaches the nest and is allowed to swing back again should the parent retire.—R. T. LITTLEJOHNS, Melbourne.

Bird Protection.

THE QUESTION OF BIRDS BECOMING RARE AND THEIR PROTECTION.

By A. G. BENNETT, M.A.S.O.P. (Argentine), R.A.O.U., Port Stanley, Falkland Islands.

THE question of birds becoming rare, even to extinction, is,I am aware, a well debated point. In the newer countries it appears deplorable, at least at first sight, that so many should go out of existence. Of course, man and his domesticated animals are in most cases blamed off hand. The question is, are we justified in such hasty conclusions ?

The Falkland Islands, in which I have resided for more than twelve years, offer, I think, some light on the subject. Although the avifauna of this comparatively small group is not, outside its oceanic species, connected with Australian birds, yet it is a new country with a sparse population (three sq. miles per capita).

We have no authentic information as to the bird population prior to the arrival of man as a resident. Certain it is that there was a fox on the two main islands which existed on birds. This fox, being stupidly tame, soon went out. The horse, cow and pig were introduced at an early date and went wild. These must have greatly altered the conditions. The greatest alteration probably followed the introduction of sheep, these being closer feeders.

The unbalancing of any form of nature must in itself adversely affect many species, not birds alone. The introduction of animals would so alter conditions, both of food and shelter, that some would die out or become reduced in numbers in their struggle against the new arrival. Those unfitted to compete must go, while those to which the new conditions are a benefit, or which can adapt themselves with benefit to the change, continue to live, and in some cases increase, as a result. I am certain that no form of protection by legislation could in any way either assist or prevent such vital and natural laws operating.

If we carry this law just a step onward, and proceed from grazing to agriculture, the destruction is probably worse. Drain a marsh, and the inhabitants go. Drain all the marshes in a large area, in England for instance, and they have gone. Carry this over the whole range of any bird and it becomes extinct. Destroy by any means vital conditions necessary to any bird's existence, *e.g.*, food or shelter, and it must migrate to suitable spots or go under. Conversely, other species will benefit, but we never hear of this unless the favoured individual becomes a pest.

Here, we have a Ground Starling (*Trupialis falklandica*) whose principal food appears (so far as we know) to be the grubs of beetles. With the arrival of man came potatoes, which meant digging to plant them. The dug ground proved to be a beneficial spot to beetle larvae and potatoes appear to be acceptable food to them. Undoubtedly, the Starling in searching for the grubs that commonly burrow in potatoes also found that potato was good eating. The result of this is to-day that potatoes are, in many parts of the islands, severely destroyed by these birds. Being an insular species it is protected. The point is that, so far, man and his potato gardens have been a benefit to this bird.

The destruction of the fox must have given a great impetus to bird-life, notably geese and plovers, for it was observed by Darwin that the smaller, fox-free, out-lying islands were their breeding places in 1833. This holds good to-day in a general sense.

The introduction of sheep, though destructive to some, probably helped other forms of bird-life. Geese undoubtedly benefited greatly from the shortened grass, for they have long been considered and treated as a pest.

There are no trees in the Falklands, consequently we have few small birds.

A Sparrow (*Phrygilis*) almost vanished on badly overstocked land near the town of Stanley. It is a seed eater. A Seed-snipe (*Attagis*), a seed eater, is rare if not gone from the group, but was not uncommon.

The experiment has conclusively proved that sheep and tussock-grass (*Poa flabellata*) cannot exist together ; the tussock dies.

Now, tussock-grass is a massive thing, growing profusely adjacent to the sea shore, on points and generally within sea spray. The blades are some six feet long and grow in large raised tufts ; progress through it is difficult. This grass is the home and food of at least three species of birds, a *Cinclodes* and two Wrens. On the main islands (all given over to sheep) this fine grass has gone, and with it its bird population, leaving large areas barren. We shall never know what birds lived in it.

I could extend this, but I think I have shown sufficient to make my point, and that point is that though we may deplore species becoming rare and going out, man is not usually capable of preventing the extinction, for the progress to that end is usually complete before the threat is noticed.

I have said above that this is a sparsely peopled country, yet we have a number of species protected. Beyond those which are game birds (ducks and snipe) I have yet to find the reasons. On this list of birds protected, either partly or wholly, there is not a single bird fit to eat, none rare, or even threatened. Under ordinary circumstances no one would waste a 3d. cartridge on any of them. But protect them by law, and you advertise the fact, " Don't touch," and like children everyone wants to, and does.

Next, the collector who hears something has become rare must have it. If he has sufficient money he gets it. Legislation may hamper, but it will never prevent this or any other form of smuggling. This fact is seldom looked in the face. You have advertised by law that something is rare, and as at a draper's summer sale, there is a rush for it.

I feel confident that many species of birds become extinct from causes that have never been suspected, yet they go, as a result of the natural law of evolution. Others, even if not observed, in most cases fill the void. Apart from the plume hunter and the species he preys on, I think that the greatest bird destruction is as follows :—

New Country.
Graze : Some slight effect on ground feeders.
Drain : Waders and aquatic forms go.
Burn forest : Destructive to most species.
Till the land : Very destructive to most ; a benefit to some.
Intensive cultivation : Only benefited species remain, mostly Passerines and Raptores that prey on them.

KERGUELEN TO BE DECLARED A SANCTUARY.

Seven years ago Dr. A. Menegaux contributed to the *Revue Francaise d'Ornithologie* an article on the possibility of using the Kerguelen Islands as a national park for the preservation of animal life in the Antarctic. In this article he urged the French Government to take action in Kerguelen similar to that which had recently been taken by the Tasmanian Government with regard to Macquarie Island, when it refused to renew a licence for the capture of penguins. (See *Emu*, XVIII., p. 64.)

The Paris correspondent of the London *Times* now reports that " the French Government has decided to make this sanctuary a reality by creating a preserve for the wild animals of the Southern Seas on the territories in the far south of the Indian Ocean which belong to France. Chief among these are Kerguelen Island, the Crozet Archipelago, and the islands of St. Paul and Amsterdam, with the stretch of the coast of the Antarctic Continent known as Adelie Land, which lies to the west of the Ross Dependency of New Zealand. In addition to various kinds of seals, the sanctuary will also accommodate penguins, whom Anatole France has endeared to the heart of the Frenchman. These creatures are at present slowly but surely being exterminated by hunters, who kill them for their furs and feathers. The new decree will make it illegal to touch them in the areas specified and will be enforced, as far as possible, by naval patrol vessels based on Madagascar."

Australian ornithologists will join in congratulating their confrère, Dr. Menegaux on the success which has attended the movement inaugurated by him. The logical French mind evidently perceives the necessity, when making a reservation of this kind, to arrange for efficient supervision to see that the decree is effective. The idea is worthy of consideration by those responsible for the creation of reserves in Australasia. Though we frequently see announcements that reserves have been created in this part of the world, we do not recall ever seeing any announcement as to the means to be taken to ensure that the reserve would be respected.

Review.

MATHEWS' BIRDS OF AUSTRALIA, VOL. 11, 1923-24.

In the preface to this volume, which was published in nine parts, Mr. Mathews makes the welcome announcement that his great work is nearing completion, as there is only one more volume to appear. The eleventh volume is on the same lines as its predecessors, the species being treated as a whole, with short notes on the subspecies recognised by the author at the end of the account. Eighty-three species are dealt with in this volume and all of them are figured by H. Grönvold on 51 plates which contain 145 figures. It will be seen that in many instances we are given more than one figure of a species, most of the more striking geographical forms of variable species being illustrated.

The families dealt with are the *Falcunculidæ*, *Sphenostomidæ*, *Sittidæ*, *Climacteridæ*, *Zosteropidæ*, *Dicaeidæ*, *Pardalotidæ*, *Nectariniidæ* and part of the *Melithreptidæ*.

Falcunculidæ is a new family name for the Shrike-tits, with which the author associates the Crested Bell-bird, though expressing doubt as to whether it is really related to them. Mr. A. H. Chisholm in his " Mateship with Birds " (1922, pp. 102, 103) has suggested not only that these two forms are related, but that they have an affinity with two other anomalous crested birds, the Wedge-bill and the Whip-bird. Mr. Mathews considers that the relationships of

Falcunculus are entirely unknown, though it may come nearest to *Pachycephala.* Only two species of the genus are recognized, *F. frontatus* from northern and eastern Australia and *F. leucogaster* from the south-west corner of the continent. *F. whitei* from the extreme north of Western Australia, is regarded as a subspecies of the former. At the time of its discovery it appeared to be as isolated as the south-western bird, but since then Shrike-tits have been obtained in the neighbourhood of the Gulf of Carpentaria both in Queensland and the Northern Territory so that on geographical grounds Mr. Mathews' view of its relationship seems reasonable.

The *Sphenostomidæ* include the White-faces and the Wedgebill, birds formerly placed in the family *Paridæ* by most authors. Mr. Mathews does not discuss their relationships, nor does he state why he continues the association of forms superficially so distinct. Gould's suggestion that the Wedgebill was nearly related to the Coachwhip-bird has also recently been upheld by Mr. A. G. Campbell, so it is disappointing that the author has not disclosed his views on the subject. Mr. Mathews regards the western White-face (*Aphelocephala castaneiventris*) as only subspecifically distinct from the familiar *A. leucopsis* of the south-east. He also expresses the view that the two central birds *A. pectoralis* and *A. nigricincta* are probably forms of one species, though he maintains them as distinct species in deference to the views of Capt. S. A. White.

The Tree-runners (*Sittella*) are retained in the family *Sittidæ*, though in view of their nesting habits, which are quite distinct from those of the true Nuthatches, it seems not improbable that their resemblance to the northern hemisphere birds is due to convergence, the result of similar habits. Mr. Mathews draws attention to the curious fact that whilst the Tree-runners of southern Australia have orange wing-bars, those of northern Australia have white wing-bars, yet both in the north and in the south there are birds with black heads and birds with white heads. Of the White-headed Tree-runner (*Neositta leucocephala*) the author states that it is " still one of the rarest birds with a very restricted range," and gives its distribution as " Queensland (Moreton Bay District) and Northern New South Wales (Clarence River) " yet he describes eggs from Duaringa, near Rockhampton. He seems to have overlooked Campbell's account of the discovery of the first nest of this species at Coomooboolaroo and the account given by North of the discovery of other nests of this species in the same locality by members of the Barnard family. As to the distinctness of the little-known *N. albata* he expresses some doubt. Its distribution is given as " Queensland (Port Denison to near the Brisbane District)." We have seen plenty of White-headed Tree-runners in Central and Southern Queensland, where they are quite common birds, and all those observed by us had the rufous wing-bar characteristic of *N. leucocephala*. We do not think that the possession of a bird by Mr. Mathews apparently labelled " north of Brisbane " is sufficient evidence of the extension of the range of *N. albata* to south Queensland. If Mr. Mathews has fuller particulars which he has not published, and the record is accepted, it will be an interesting parallel to Milligan's record of *N. leucoptera* from the Blackwood River, south-west Australia, to which he draws attention, though he doubts its accuracy. Mr. Mathews places the Striated Tree-runner in a distinct genus, *Neosittella.*

For the Australian Tree-creepers a new family, *Climacteridæ* is proposed and they are divided into three genera, *Climacteris, Cormobates* and *Whitlocka.* The account of them begins : " Australian Tree-creepers are superficially quite like Palæarctic Tree-creepers and ought to form a family Climacteridæ, quite apart from the Certhiidæ " We are not sure whether " like " is a misprint for " unlike " or " and " for " but." As it stands the sentence seems illogical. The separation into two families is based on the fact that the hinder aspect of the tarsus is covered by a single scute in *Climacteris* and is bilaminate in *Certhia.* Mr. Mathews states that the Philippine species *Rhabdornis mystacalis* formerly placed in *Climacteris* agrees with *Certhia* in this feature. It would have been interesting to know what was the case in *Tichodroma* since this genus agrees with *Climacteris* and differs from the other *Certhiidæ* in having a single scute on the anterior aspect of the tarsus.

Mr. Mathews agrees with the view expressed by Howe (*Emu,* XXI., p. 41) that *Climacteris waitei,* White (*Emu,* XVI., p. 168 and XVII., plate 1) is based on an immature male of the Brown Tree-creeper (*C. picumnus = scandens*) and is not a distinct species, but he gives specific rank to the northern form of the White-throated Tree-creeper under the name *Cormobates minor* (Ramsay). *Climacteris wellsi,* Grant is regarded as a subspecies of *C. melanura,* Gould, which is the type of the new genus *Whitlocka.*

The family *Zosteropidæ* is retained as distinct from the Honey-eaters, though Sharpe's separation of the group was originally due to the mistaken idea that these birds had not brush tongues. Mr. Mathews inclines to the view that there are two species of Silver-eyes in south-eastern Australia, one with a white throat (*Z. lateralis*) the other with a yellow throat (*Z. dorsalis*). He finds that in Tasmania and New Zealand only white-throated birds occur, that both forms occur in Victoria and that in Queensland all the birds are yellow-throated. He also states that the New Zealand birds which are believed to have arrived there in 1856 from Australia (or Tasmania), are sufficiently distinct to deserve a subspecific name and accordingly bestows on them the name *Z. lateralis investigator.*

Of the northern Silver-eyes, *Z. gulliveri* and *Z. balstoni* are both regarded as subspecies of *Z. lutea.* The distribution of *Z. albiventris* is given as " North Queensland (never on the mainland)," but it is surely most improbable that wandering birds like Silver-eyes should occur on numerous islands along a coast and never visit the mainland.

The family *Dicæidæ* contains only one Australian representative, the familiar Mistletoe-bird, for which Mr. Mathews adopts the generic name *Microchelidon.*

The *Pardalotidæ* are considered to be quite a distinct family, peculiar to Australia, with no special affinity to the *Dicæidæ* in which family they have often been placed. Mr. Mathews says the Pardalotes "can be divided into four; whether they are considered genera or subgenera is of little real importance." He then treats these four divisions as genera named *Pardalotus*, *Nesopardalotus*, *Pardalotinus* and *Dipardalotus*. If it is of "little real importance" to consider these as genera rather than subgenera, would it not have been preferable to adopt the latter course, as this would not have meant the alteration of the binomial names in common use? Only five species are recognised, so that three of the four genera only contain a single species. *P. xanthopygus* is regarded as the Mallee form of *P. punctatus*, *P. pallidus* as a pale form of *P. rubricatus* and *P. uropygialis* as a western form of *P. melanocephalus*. *P. ornatus*, *P. affinis* and *P. assimilis* are all regarded as forms of *P. striatus*, in which "the tipping to the wing-coverts varies from yellow to scarlet and the white edging on the primaries varies from a single line to a large white patch." Mr. Mathews concludes that these characters are not yet specifically fixed.

The family *Nectariniidæ* still only contains one Australian species, the Sunbird, but Mr. Mathews states that probably the Spine-bills and some other Honey-eaters should be placed in it. He writes: "The Honey-eaters of Australia constitute one of the composite unnatural groups which characterise geographical divisions and show one remarkable feature, in this instance the brush tongue. This was seized upon as a valuable feature one hundred years ago and has since been utilised, apparently for the sake of convenience, because it is obvious that the birds so classed are not phylogenetically so closely related as the possession of this one peculiar feature might imply."

In this view we do not think Mr. Mathews will obtain support from any ornithologist familiar with Australian birds in life. There is something about the movements, attitudes, flight and notes of the Honey-eaters that nearly always enables one to recognise a member of this family in the bush, even at a distance. Diverse as they are in size and colouration they all, with two remarkable exceptions, make open cup-shaped nests and lay eggs varying from white to pink, spotted comparatively lightly or not at all.

Referring to Dr. Shufeldt's account of the skeleton of the Red Wattle-bird (*Emu*, XIII., p. 1) Mr. Mathews says the only point of importance given by Shufeldt is that *Acanthorhynchus* is a Sun-bird. In making this statement Dr. Shufeldt himself qualified it by saying that the skeleton of *Acanthorhynchus* he examined was that of a "small unidentified species of this genus," sent him by Dr. F. E. Beddard, and he added: "The only question that can be raised is that the skeleton at hand was accidentally misidentified by the one who labelled it at the Zoological Society of London prior to transmitting it to me, and the skeleton is of some small Nectarine species instead of a Meliphagidine one." Just previously he had stated that "the entire structure of its skull *and tongue*" were those of a Sun-bird. This would seem to prove conclusively that the skeleton studied by Shufeldt was not that of an *Acanthorhynchus*, since the Spinebills have brush tongues unlike those of Sun-birds, but resembling those of other Honey-eaters.

In spite of the views quoted Mr. Mathews retains all the Honey-eaters in one family, for which he uses the name *Melithreptidæ* on the ground that *Meliphaga* is pre-occupied by the earlier generic name *Melophagus* so that the family cannot be called *Meliphagidæ*. The first genus dealt with is *Melithreptus* in which he recognises six species. *M. chloropsis* and *M. albogularis* are regarded as forms of *M. lunatus*, but it is admitted that Australian ornithologists familiar with *M. albogularis* in the field have almost all regarded it as a distinct species, and that this view may be correct. Both species (or forms) occur in Queensland, where *M. lunatus* with red skin round the eye occurs in the scrub on ranges whilst *M. albogularis* with whitish or greenish skin round the eye is the common bird in forest country. *M. gularis*, *M. lætior* and *M. validirostris* are regarded as distinct species though at one time these also were united by Mr. Mathews. *M. leucogenys* is considered a form of *M. brevirostris* for which *M. atricapillus* is the name used.

The genus *Entomyzon* is placed next and is said to be "purely an exaggerated *Melithreptus*." This may be true but we think there is little doubt that *Entomyzon* is closely related to the Friarbirds, a relationship shown by its habits and the form of its nest, which, when it builds one for itself instead of using the old nest of some other bird, is very much like that of a Friarbird. *E. albipennis* is considered a form of *E. cyanotis*.

For the Striped Honey-eater the name *Plectoramphus* is used as *Plectorhyncha* is regarded as pre-occupied by *Plectorhinchus*.

Only two species are retained in the genus *Myzomela*, viz., *M. sanguinolenta* and *M. erythrocephala*. *M. pectoralis*, *M. nigra* and *M. obscura* each become the sole occupants of the three genera *Cissomela*, *Sugomel* and *Melomyza*. Mr. Mathews thinks *M. nigra* has "little or no connection with the other species classed under *Myzomela*, whether they be closely related or not, as the wing is of quite a different formation." Apart from this species he thinks *Myzomela*, with *Acanthorhynchus*, should be placed in the *Nectariniidæ*.

In the genus *Gliciphila* only one species, *G. melanops*, better known as *G. fulvifrons*, is retained. *G. albifrons* is the sole occupant of a genus *Purnella*, whilst *G. fasciata* and *G. modesta* form the genus *Ramsayornis*. These two birds are quite exceptional among Honey-eaters in building domed nests and we are inclined to agree that this fact warrants their generic separation.

The Painted Honey-eater is called *Grantiella picta* as the generic name *Entomophila* is pre-occupied. *E. albogularis* and *E. rufogularis* are placed in the genus *Conopophila*. The Regent Honey-eater is called *Zanthomiza phrygia* since the generic name *Meliphaga* as already noted is regarded as pre-occupied and in any case properly belongs to the birds generally known as *Ptilotis*.

Few Australian ornithologists will recognize the "Least Honey-eater (*Lichmera indistincta*)." These are the names used by Mr. Mathews for the Brown Honey-eater (*Stigmatops ocularis*). He seems to have good reasons for the change in the scientific name but this is not the smallest honey-eater according to the measurements given by him, the species of *Myzomela* and " *Ramsayornis* " being smaller.

The birds formerly called *Ptilotis* with which this volume concludes are divided by Mr. Mathews into twelve genera, one of which, *Dorothina*, contains six species, another three species, four others two species and the other six one species each. Space will not allow of our discussing these in detail. We do not understand why the vernacular Yellow-fronted Honey-eater is used for *Pt. analoga*, in place of the usual name Yellow-spotted Honey-eater, since there is no yellow on the forehead of this bird. Possibly this is a misprint since the figure has the usual name, but it is repeated in the heading of the next page.

In this review we have chiefly noted changes in classification or in nomenclature and commented on certain views expressed by the author which seem to us open to question, but these are only minor matters. Mr. Mathews has provided us with a complete synonymy, full references and accurate descriptions of each species and has collated published information about each with notes supplied him by most of the leading field workers in Australia. For all this valuable labour Australian ornithologists are enormously indebted to him, and by indicating the gaps in our knowledge and discussing all doubtful points he should stimulate us to collect further facts to fill up these gaps and settle doubts.—W.B.A.

Correspondence.

IS THE SHAPE OF AN EGG AN INDICATION OF THE SEX OF THE CHICK ?

On page 234 of the *Emu*, Vol. XXIV., the following note by Mr. H. Wolstenholme appears on the nest and eggs of the Brolga, *Megalornis rubicunda* :—

" The two eggs were decidedly different in shape, one being fairly round and the other somewhat elongated. The boy who brought the information as to the nest and acted as guide was anxious to know whether one would produce a male and the other a female, and if so, which was which. None of the learned ornithologists present could answer this simple question."

I would like to do my little bit towards answering this simple question. My observations, after many years as a collector, lead me to the conclusion that birds that lay two eggs to a clutch invariably lay one elongated and the other fairly round, and with this strange phenomenon always at hand I decided on the following experiment.

From a friend who kept poultry I carefully selected thirteen Leghorn's eggs of the " fairly round " shape already mentioned, with the result that I secured twelve pullets and one cockerel. After reading the above article in the *Emu*, I spoke of my experience to Mr. A. J. Campbell, and he informed me that he had tried the same experiment with the elongated eggs and produced all cockerels.

16 Moorhouse St.,
East Camberwell,
Melbourne.

E. W. BUNN, R.A.O.U.
4th April, 1925.

WHAT IS THE FOOD OF THE AUSTRALIAN DARTER?

On Oct. 22, 1919, while collecting for the U.S. National Museum on the Macdonald River, New England, N.S.Wales, I shot a Darter (*Anhinga novæhollandiæ*). I little suspected this bird of being a vegetarian, nevertheless its crop, with the exception of one small shrimp, was crammed full of short sections of assorted river weeds. This confirms Mr. J. A. Hill's observation published in the *Emu*, Vol. XXIV., p. 165. At the same place I shot a red-bellied black snake, which was basking in the sun on a half-submerged granite rock. Its stomach contained three fresh-water blackfish (*Gadopsis marmoratus*) measuring from 4½ to 6 inches in length. I mention this to show that fish were available to the bird.

La Mascotte,
Doncaster Avenue,
Kensington, Sydney.

HARRY BURRELL, C.M.Z.S.
March 8th, 1925.

I have frequently watched Australian Darters fishing in our lagoon, and have repeatedly seen them come up with fish in their bill, holding the fish crosswise. After swimming round for a little they give their head a toss and throw the fish into the air, catching it as it comes down head first in proper order for swallowing. When they catch an extra large fish (about 6 in. × 3 in.) they seem to think it unsafe to toss it while in the water and swim ashore with it. Even from a distance of one hundred yards one can watch the course of the fish down the long, snake-like neck by the large swelling gradually descending towards the body.

Coomooboolaroo,
Duaringa, Queensland.

C. A. BARNARD,
March 22nd, 1925.

Whilst the observations of Messrs. Hill and Burrell suggest that the Darter sometimes varies its diet, there can be little doubt that it is in the main a fish-eating bird. Mr. Barnard's observations confirm those made by Mr. F. L. Berney in the Richmond district, North Queensland, published in the *Emu*, Vol. VI., p. 155. All the standard works on Australian birds state that the Darter lives principally on fish (Gould's Handbook, Vol. 2, p. 496; Campbell's Nests and Eggs, p. 980; North's Nests and Eggs, Vol. 3, p. 336). The Indian, African, and American Darters are likewise credited with living principally on fish (Jerdon's Birds of India, Vol. 2, p. 865; Legge's Birds of Ceylon, p. 1194; Stark and Sclater's Birds of South Africa, Vol. 4, p. 14; Bent's Life Histories of N. American Petrels and Pelicans and their Allies, p. 234.)

Under the title Snake-bird in Newton's Dictionary of Birds we read: "Its speed and skill under water are almost beyond exaggeration, and it exhibits these qualities even in captivity, taking—apparently without effort—fish after fish that may be introduced into its tank, however rapidly they may swim and twist." In this note Prof. Newton was no doubt referring to the Diving Birds' House in the London Zoological Gardens, where the sight of the Darter pursuing and capturing the live fish placed in its tank at feeding time has for years been witnessed daily by hundreds of people. These spectators would take a lot of convincing that a Darter is naturally a vegetarian.—EDITOR.

Stray Feathers.

The Devonport Crested Penguin.—There has been some discussion among Australasian ornithologists as to which species to refer the Penguin which came ashore near Devonport, Tas., in 1913. In a paper contributed to the *Ibis*, Jan., 1915, I referred the specimen to *Catarrhactes chrysocome*, Forst., but the white throat and very small amount of yellow crest indicated that maturity had not been reached. Since then Mathews and Iredale, in "A Manual of the Birds of Australia," Vol. I., p. 12, have referred the Devonport specimen to *Eudyptes schlegeli*, Finsch and have queried it as "Adult"; in the *Ibis* paper I stated that "he evidently had another moult to undergo before reaching maturity."

In Feb., 1910, Dr. Brooke Nicholls kept for some time in captivity a Crested Penguin which came ashore at Lorne, Vic., where he was holidaying at the time; the bird was quite tame, but sulked in a bathing-box for the first fortnight, during which it underwent a complete moult, "his new crest being of a bright sulphur-yellow." Dr. Nicholls' photo taken after the moult, indicates a long crest, and a very black throat sharply defined from the white of chest below; this photo may be seen in the admirable little "School Paper" (Melb., Oct., 1910), and was reproduced by A. F. Bassett Hull in "Records of the Australian Museum," Vol. XII., No. 6, with the Devonport specimen figured in the same plate. There is no doubt that the Lorne bird was *C. chrysocome*, Forst.

The dusky hue showing through the white-tipped feathers of extreme upper-throat in the Devonport specimen, for about one inch and a quarter below base of bill, seems to indicate that the throat would eventually have become black had the bird lived to attain maturity.

In one of his interesting letters to me, Mr. R. Stuart Sutherland of N.Z. remarked: "I consider your specimen *chrysocome*, but of course would require to see it before being positive. . . . . A point worthy of notice in *schlegeli* is the larger bill:—

pachyrhynchus	2.1 ins. to 2.90 ins.
chrysocome	2.0 ins. to 2.75 ins.
schlegeli	2.7 ins. to 3.10 ins."

The bill in the Devonport specimen is very slightly over 2 ins., so this seems to put *schlegeli* out of court, as it is extremely unlikely that that feature would have developed so greatly in the comparatively short time before its owner would have reached maturity.

These two points appear to indicate the correctness of my identification ("*Ibis*" 1915) as *Catarrhactes chrysocome*, Forst.—H. STUART DOVE, W. Devonport, Tas.

* * *

Size of the Wedgetail Eagle (*Uroaetus audax*).—Eagles received in Taronga Park from various parts of New South Wales vary somewhat in size; and wing measurements—tip to tip—have been recorded from 6 feet 1 inch to 7 feet. The largest specimen in the collection is an albino, deposited in 1915 by Mr. H. L. White, and still alive; this bird has not yet been measured. Mathews in his Birds of Australia quotes many measurements taken from birds killed in various parts of Australia varying from 6 feet to 7 feet 4 inches, and Mr. H. L. Berney records having heard of one which measured 9 feet (Emu III p. 123). In this connection a letter received from Mr. A. G. Bolan, Station Master at Ooldea in South Australia is of interest. He states: "Wedgetail Eagles grow very large upon the Nullarbor Plain, and sizes of 9 feet have been measured frequently, but one certainly was measured over 10 feet by me personally, and to do so I had it brought home alive. This bird got caught in a dingo trap, and I brought bird and trap home in a cart to photograph—10 feet 3 inches—this bird was large and strong enough to drag a heavily weighted Dingo trap away."

This measurement gives the Wedgetail the distinction of having a longer wing than any other bird of prey in the world, and it is only beaten among flying birds by the Wandering Albatros, at 11 feet 6 inches. The Condor has a wing measurement of 9 feet 2½ inches. —A. S. LE SOUEF, C.M.Z.S., Taronga Park, Sydney.

* * *

Large-billed Stone-Curlew (*Orthorhamphus magnirostris*) **in Moreton Bay.**—On March 15, 1925, I saw some Stone-Curlews on Fisherman's Island at the mouth of the Brisbane River, which had whitish throats, distinct white patches on the wings and long bills. They did not stand so high as the common species and were undoubtedly Large-billed Stone-Curlews. In the *Emu*, Vol. XXIV, p. 233, the occurrence of this species on North Keppel Island is said to be the most southerly record. The present record extends their range much further south.—(Mrs.) L. M. MAYO, R.A.O.U., Brisbane.

It is satisfactory to have a definite record for this species so far to the south of the habitat ascribed to it in ornithological text-books. In the *Emu* Vol. XIX p. 223 it is "reported as having been seen" on Stradbroke Island, Moreton Bay, during the visit of the R.A.O.U. to Queensland in 1919, but without the name of the observer such a record could not be accepted without confirmation.—EDITOR.

Birds and a Snake Tradition.—For many years small birds used to build their nests in the creeping vines—Wistaria and roses—round the verandah of this house ; they included robins and Spotted-sided Finches. About fifteen years ago a snake found them out and raided their nests one summer.

We killed the snake, but the birds have never built there since—not one nest—thought they have nests in dozens in the surrounding garden. During the late droughts we have had birds from the hot dry parts of the country as refugees here in the cooler and moister country, amongst them the Double-barred Finch or " Bandy " (*Steganopleura bichenovii*) which I had only seen before in Queensland. These little birds have settled here and formed a flourishing colony and this summer they have built and reared a family in the verandah vines. We suppose that as they are strangers here, and probably do not understand the language of the natives, they have not yet heard the tradition of the snake.—C. MAY WRIGHT, Wongwibinda, Armidale. N.S.W.

* * *

Spine-tailed Swifts (*Hirundapus caudacutus*) **feeding on Grasshoppers.**—At the beginning of this year—after an unusually wet summer—myriads of grasshoppers appeared. They flew—carried by the wind —from one area to another in immense swarms, usually well over a mile long by half a mile thick, flying at any altitude up to twenty feet from the ground.

On 31st January I noticed a large flock of Spine-tailed Swifts numbering from two to three thousand flying through and feasting on one of these travelling swarms. Some birds were mere specks in the sky but most were flying very low, swooping, darting and sometimes just skimming the ground in their pursuit of the grasshoppers, until the air was literally thick with birds and insects. They followed the grasshoppers for three days and then disappeared leaving only a few hundred which left on the fifth day.

Early in April I noted a small flock of some eighty birds, a hundred miles to the south-west, but in this case saw no grasshoppers excepting a few, which keeping to the ground, were safe from the Swifts.

Some people in this district affirm that they have seen these birds alight on the horizontal limbs of tall, dead trees, from whence they fly by throwing themselves off. However I do not credit this, as not being close observers they most likely confused them with some other birds. I had the birds under observation while they were here and did not see any alight.—F. V. MCMICKING, R.A.O.U., " Kinkora," Tootool, N.S.W.

* * *

White-winged Black Terns (*Chlidonias leucoptera*) **in Moreton Bay**—When crossing Moreton Bay between Myora, Stradbroke Island, and King Island on Easter Monday, 1925, I observed a pair of birds whose colouring looked unusual. A closer view showed that they were the black tern, rare in these latitudes. The velvety black bodies of the birds and the under web of the wings had a few oval greyish white spots on them (more on the wings than the bodies) making it look as though the plumage was in some transitory stage. The seas in that part of the bay were heavy after a long spell of south-east weather, and the birds swooped down and over the seas picking up food after the fashion of the Gull-billed Tern. I did not see them dive at all.

About ten years ago I observed several of these birds in Moreton Bay, close to the mouth of the Brisbane River, but I have not seen them since until this year.

In addition to the Black Terns, other species observed in Moreton Bay during the Easter excursion of the Queensland Naturalists' Club included Crested Tern (*Sterna bergii*), Lesser Crested Tern (*S. bengalensis = media*), Caspian Tern (*Hydroprogne caspia*), Gull-billed Tern (*Gelochelidon nilotica*) and Little Tern (*S. albifrons = sinensis*).—(Mrs.) L. M. MAYO, R.A.O.U., Brisbane.

On Good Friday when crossing from King Island to Stradbroke Island to join the camp of the Queensland Naturalists' Club I saw some birds on Moreton Bay which I thought were White-winged Black Terns, the bird which came nearest to my boat looking quite black underneath, but I did not get a sufficiently good view to be certain and thought the black appearance might be a shadow effect. In the *Emu* Vol. XVII p. 95 I gave a full account of the only other recorded occurrence of this species in Australia in recent years. On that occasion thousands appeared in south-western Australia at Easter, 1917. It is worthy of note that on this occasion also the birds were seen at Easter. Mrs. Mayo's statement that she saw these birds about ten years ago is also interesting. Possibly it may have been in 1917, eight years ago, when the birds visited Western Australia.—W. B. ALEXANDER.

* * *

Nankeen Night-Heron (*Nycticorax caledonicus*) **in the Riverina.**—The accompanying photograph is of a young bird, taken during February last.* I often see young ones in the swamp, but during the last twelve months I have not seen more than two adult birds. The adults are always seen in the trees in the day-time, but I generally flush the young from among the reeds, when they flap off in a most ungainly manner into the trees. The bird in the photo had wandered up to the house, probably in search of grasshoppers, which were numerous. I returned it to the swamp next morning.—F. V. MCMICKING, R.A.O.U., Kincora, Tootool, N.S.W.

* * *

Colour Varieties of the Budgerigar (*Melopsittacus undulatus.*)—Having been in a position to see many Budgerigars in captivity, and also having bred them for some years I have never noted any variation from the ordinary wild type. This species is however bred extensively in Europe, where first the canary yellow and then the light blue forms were reared. When in France in 1921 I saw some sage green birds in the collection of Madame Le Calier. Now Mr. Hubert Ashley, the well known ornithologist and aviculturalist of

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* See Plate 5, Fig. 2.

Brinsop Court, Herefordshire sends news of additional colours. In a letter dated 25.2.25 he states, " I have two pairs of the Cobalt Budgerigars (the deeper blue) . There seems to be no end of the colouring to be obtained in this species, a friend of mine has lately bred from a blue and a grey, young ones grey above, with yellow foreheads and green underparts."—A. S. LE SOUEF, Sydney.

* * *

Black-backed Magpie (*Gymnorhina tibicen*) in the Riverina.—During the last twelve months I have noted these birds with pure white backs on three occasions. In two instances they were young birds, in separate localities, each attended by black-backed parents. In the third instance the white-backed bird was an adult with a black-backed mate. I have seen several cases where the dark grey back of the young bird was replaced by such a pale grey as almost to be called white.—F. V. MCMICKING, R.A.O.U., Kincora, Tootool, N.S.W.

* * *

Gold-finches (*Carduelis carduelis*) at Armidale, N.S.W.—We now have very many Goldfinches ; they live on the English cocksfoot grass seed which is plentiful here. I hope they will not become a pest.—C. MAY WRIGHT, Wongwibinda, Armidale, N.S.W.

Notes on the spread of introduced birds in Australia seem well worth recording in the *Emu*. For some years Goldfinches have been plentiful about Tamworth, N.S.W., but we have not noticed them further north. Last summer we were surprised to find that the Greenfinch (*Chloris chloris*) was plentiful at Bathurst, N.S.W.—Editor.

* * *

Summer Migrants in Tasmania, 1925.—The most notable point about the migrants this summer has been the total absence of the Spinetailed Swift (*Hirundapus caudacutus*) from the district. For the first time in over twenty years of observation, not one has been seen by me, and whereas at the beginning of this century they used to muster in myriads towards migrating time, for the last few years they have been getting scarcer and scarcer. One would be inclined to think that the great seismic disturbance in Japan had shaken up the breeding-grounds there, and caused an alteration in the birds' movements, but a correspondent in Southern N.S.Wales noted plenty there during the summer, and a young Hobart observer who spent a holiday at Falmouth on our East Coast, gives Swifts among the species seen there (" Tas. Mail," 8.4.25). Our North West Coast, at any rate, appears to have lost favour with the Spinetail as a " jumping-off " place when leaving for its flight to the North.

All the Welcome Swallows and Tree Martins, also Wood-Swallows (*Artamus sordidus*) seem to have left us by the end of March, and only one or two Pipits (*Anthus australis*) were seen after that ; it was a dry season, and yet there was plenty of insect life, and Cuckoos stayed longer. I heard a Pallid Cuckoo (*Cuculus pallidus*) calling on the afternoon of 29th April, very late for this species, and on 9th May no less than three Fantailed Cuckoos (*C. flabelliformis*) were trilling and whistling in the White Gums at the back of my cottage, just as in the spring. On 31st May one of this kind was again calling in the same trees, using both varieties of note.

The Bronze Cuckoos (*plagosus* and *basalis*) are seldom heard here now, and then only after arrival in spring, as they appear to like inland resorts better than coastal localities. The young of these are often quite late in leaving, although the adults seem to go about the end of February, I have noted the immature birds feeding about in short grass until well on in April. They seem to stay here a week or two, where it is less dry than inland, and capture many caterpillars and small insects on the ground; they are no doubt gaining strength for the flight across the Strait.—H. STUART DOVE, W. Devonport, Tas.

Library Notes.

By F. ERASMUS WILSON, Hon. Librarian.

The following publications have been received since the beginning of the year :—

Royal Society of Tasmania. Proceedings, 1924.

Annual Report of Smithsonian Institution, 1922.

Condor, Vol. 27 (1). "The nest and eggs of the Black Rosy Finch," by Frederic W. Miller. Even in the United States with its large band of active oologists, the nesting habits of some birds are unknown. The account of the finding of the first nest and eggs of this species on the Wapite Ridge in Wyoming at an altitude of 11,000 to 12,000 feet makes interesting reading. This bird breeds in rock crevices in very inaccessible places, and the author and his collecting companion were fortunate in securing three sets of eggs.

"A Report on the Birds of North-western Alaska and Regions Adjacent to Behring Strait." Part I., by Alfred M. Bailey.

Victorian Naturalist, Vol. 41, Nos. 9, 10, 11.

Proceedings of the Linnean Society of N.S.W., Vol. 49, Nos. 4, 5.

Queensland Naturalist, Vol. 4, No. 6. "The Blue-faced Lorilet, also called Coxen's Fig Parrakeet," by R. Illidge. Some notes on this extremely rare bird about which so very little is known.

El Hornero, Vol. III., No. 5.

Avicultural Magazine, 4th series, Vol. II., Nos. 11, 12, Vol. III., No. 1. Part 11 contains a fine coloured plate of an Indian Yellow-naped Woodpecker by Gronvold. The following items, taken from dealers price lists may be of interest as showing the value placed by British Aviculturists upon some of our aviforms :—King Parrots £10 pair, Rosellas 40s. each, Pennants Parrakeets 50s. each, Bare-eyed Cockatoos 70s. each. One dealer advertises Laughing Jackasses but does not quote prices. Part 12, "Honeyeaters," by J. Delacour.

The author notes the various species of our *Meliphagidae* that have been imported into Britain from time to time as cage birds. He enumerates sixteen species and states that *Myzantha garrula* is by far the best known in captivity. Its habitat is not confined however to South Australia, as stated by the author. A charming coloured plate accompanies this issue depicting six species of Sunbirds.

A Chapter in the History of Zoological Nomenclature, by Leonhard Stejneger (Smithsonian Miscellaneous Collections, Vol. 77, No. 1.)

South Australian Ornithologist, Vol. 8, No. 1. A most interesting number containing amongst other things the following articles of note. "Nest and eggs of *Geobasileus hedleyi rosinae*," by J. Neil McGilp. An account of the finding of the first nest and eggs of this species and descriptions of same. "Notes on the Birds of Groote Eylandt, Gulf of Carpentaria," by N. B. Tindale. Mr. Tindale gives a list accompanied by copious notes of the birds met with in this large though little known island. Many rare forms are dealt with and the paper is generally full of interest. "Birds observed at the Roper River, Northern Territory," by N. B. Tindale.

Revue Francaise d' Ornithologie, Nos. 188, 189.

Bird Lore, Vol. 26, No. 6. The Golden Doves of Fiji, by Casey A. Wood. Dr. Casey Wood, of Chicago, U.S.A., who recently spent some time amongst us, contributes an interesting paper on this beautiful species, *Chrysaena luteovirens.*

British Birds, Vol. 18, Nos. 7. 8. 9. No. 7 contains a splendid series of photographs of rookeries of the Gannet, *Sula bassana*, by H. Morrey Salmon. No. 8, "On the Nesting of the Gull-billed Tern (*Gelochelidon n. nilotica*) in the Camargue," by William E. Glegg. In this article Mr. Glegg describes his visit to a rookery situated on an island in the Rhone delta. Much interesting information is contained in the paper and his photographs are particularly fine.

Auk, Vol. 42, No. 1. "Growth, development, and reactions of young of Great Horned Owls," by Bessie P. Reed. "Ornithological work for Bird Banders," by Alfred O. Gross. A valuable paper that should be read by all who are interested in this useful branch of ornithological study. "Notes on two ground nesting birds of prey," by Chas. A. Urner. The two species dealt with in this paper are the Short-eared Owl, *Asio flammeus*, and the Marsh Hawk, *Circus hudsonius.*

Australian Zoologist, Vol. III., No. 8. "Birds of a Feather Flock . . ?" by A. H. Chisholm, C.F.A.O.U. A paper dealing with the R.A.O.U. Congress held at Rockhampton. Whilst everybody certainly has the right to express his private opinion, articles such as this tend to create bitterness and interstate jealousy amongst members of the R.A.O.U. As a member of the Union, Mr. Chisholm might well have left unsaid many of the things he has done. A considerable portion of the paper is also taken up in expressing Mr. Chisholm's views on the articles dealing with collecting that appeared in the S.A. Ornithologist, Vol. 7, Part 8. "Some Central Queensland Birds," by H. Wolstenholme. An account of the birds met with during the R.A.O.U. congress held at Rockhampton.

Some Notes on the Fregatidae. By Dr. Percy R. Lowe, ex Novitates Zoologicae, Vol. XXXI. Dr. Lowe has treated the Frigate Birds exhaustively in this paper and shows that Mathews was in error in ascribing *F. minor* to the West Indies (Jamaica). He supports Rothchild's contention that *F. minor* is an East Indian form with probable type locality at Christmas Island. A new sub-species from Raine Island is created under the name of *Fregata m. mathewsi.*

Notes and Comments.

In this number we publish a paper by Mr. A. G. Campbell containing the results of his detailed study of the Yellow-tailed Thornbill (*Geobasileus chrysorrhous*). The general results of Mr. Campbell's study of the Thornbills have been summarized by him in two papers which have already appeared in the *Emu.* The first of these entitled " *Acanthizæ* or Thornbills " was published in Vol. XXII., pp. 192-199, and the second entitled " Synopsis of Species of Thornbills," in Vol. XXIII., pp. 28-30. Mr. Campbell's views on the number of species and sub-species that should be recognized differ considerably from those of Mr. G. M. Mathews, and as the Checklist Committee has followed Mr: Campbell it is obviously desirable that the facts on which Mr. Campbell bases his classification should be published. In future numbers of the *Emu* we hope to publish articles by Mr. Campbell on the other species of this interesting but perplexing group of little Australian birds.

Mr. C. L. Barrett, R.A.O.U., has been appointed Editor of the *Victorian Naturalist,* the monthly Journal and Magazine of the Field Naturalists' Club of Victoria. The *Victorian Naturalist* has long been recognized as the best journal of its class issued in Australia and we congratulate the Victorian Naturalists' Club on securing such a well-known naturalist and journalist as Mr. Barrett to act as editor. The two numbers issued since Mr. Barrett took control contain a new section entitled, " Notes from Field and Study " in which many interesting observations on natural history are recorded. It is also announced that more illustrations will appear in the journal in future than has been the case in the past.

Dr. Alexander Wetmore, Vice-President of the American Ornithologists' Union and a member of the R.A.O.U., has been appointed an Assistant Secretary of the Smithsonian Institution to have general supervision of Museum activities, including the United States National Museum, the National Gallery of Art and the National Zoological Park. All ornithologists will be gratified to learn that a worker in the science has been selected for such an important position.

The Council of the R.A.O.U. has forwarded to the Minister for Lands, New Zealand, a letter expressing its appreciation of the appointment of Mr. A. S. Wilkinson as custodian of Kapiti Island Bird Sanctuary, and to the Minister for Lands, Victoria, a letter expressing gratification at his refusal to throw open forest areas at Cape Otway for settlement.

At the request of Dr. P. R. Lowe, of the British Museum of Natural History, the Council approached the Home and Territories Department in connection with alleged smuggling of birds of paradise from Papua down the Fly River. In reply, the Secretary of the Department has forwarded a letter from the Administrator of Papua stating that no such smuggling takes place.

Mr. D. L. Serventy has been added to the R.A.O.U. Committee on Migration as representative of Western Australia.

Mr. F. E. Howe has been appointed Acting Press Correspondent.

Mr. D. F. F. Thomson has resigned the position of Assistant Editor of the *Emu* and Mr. N. W. Cayley has been appointed Assistant Editor.

The following have been enrolled as members of the R.A.O.U. since the beginning of the present year : In New South Wales :—D. A. Duncombe, Willow Tree ; W. B. Wootton, Sydney ; F. V. McMicking, Tootool ; A. W. Scott, Sydney. In Victoria :—D. H. Fleay, Ballarat ; F. Stanley, Malvern ; J. Peet, Albert Park ; E. J. Vincent, Launching Place ; Miss J. Harper, Armadale. In Queensland :—H. M. Moore, Brisbane ; J. Mann, Sherwood ; T. A. Cole, Junr., Chinchilla . In South Australia :—H. H. Newell, Hindmarsh Island.

The following have resigned their membership in the same period : —W. R. Butcher, H. B. Williamson, J. W. Israel and A. M. Reid (Victoria) ; F. M. Angel (South Australia) ; Sandovers Ltd. (Western Australia) ; Miss F. M. Short and Mrs. J. F. Hawker (Tasmania).

The Academy of Natural Sciences, Philadelphia, U.S.A., has become a subscriber to the *Emu*. The Museum of the Academy is well known to Australian ornithologists as the institution in which Gould's collection of Australian birds is housed.

The Annual Meeting of the Union will be held in Melbourne about the last week in September or the first week in October. The camp-out will be near Murrayville in the mallee country of north-western Victoria. Full particulars will be sent to members by post at a later date.

In recent years the ornithologists of Victoria and South Australia have revealed to the world the great interest of the bird life of the mallee country, which is more distinct from that of adjacent regions than is that of many islands from the nearest mainland. It is hoped that many members from other States will take advantage of the opportunity to visit this region under the guidance of their Victorian confreres.

The Naturalists' Society of New South Wales will hold a Natural History and Wild Flower Exhibition in the Education Department Building, Sydney, during the week from October 8 to 14 inclusive. All nature-lovers are invited to assist in making the exhibition a success. Anyone willing to help is requested to communicate with Mr. D. G. Stead, Boongarre, Watson's Bay, Sydney.

For the twenty-five years during which this journal has existed it has been printed and published in Melbourne. In recent years the cost of printing in that city has rapidly increased, and on enquiry it was found that prices for similar work in Sydney were very much lower. The Council of the Union has accordingly decided to have the magazine printed and published in Sydney in future. The change of printers is responsible for the delay in issuing the present number, but it is hoped that future numbers will appear on their proper dates.

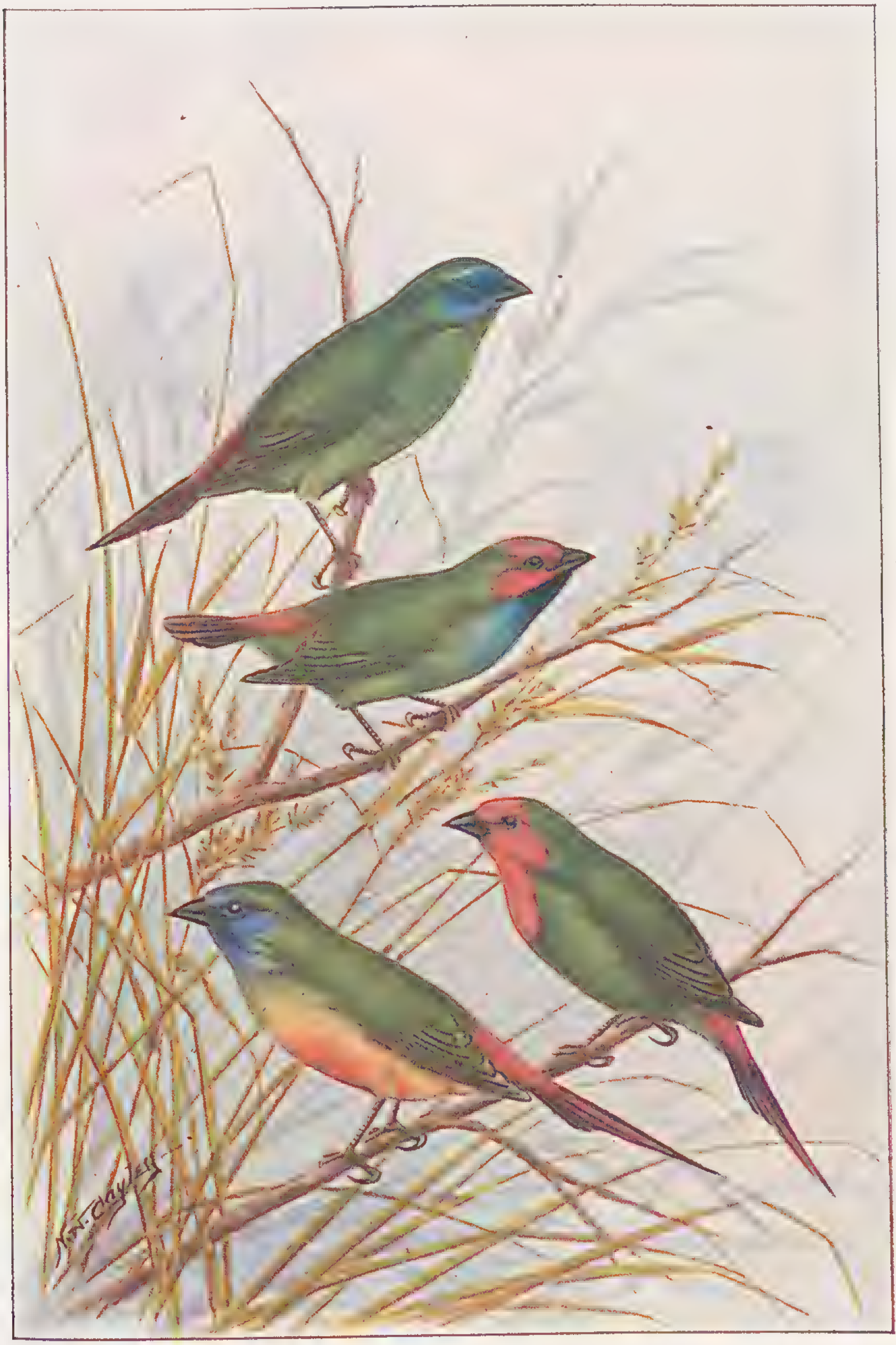
Wanted to Buy.—"Catalogue and Data of the Jacksonian Oological Collection." A high price will be paid for a clean copy. Communicate with D. Dickison, Hon. Sec. R.A.O.U., 376 Flinders St., Melbourne.

All communications in connection with the *Emu* and articles or photos for publication should be addressed to the Editor at Sherwood, near Brisbane, not to the official address of the Union. Authors desiring reprints of their papers should mark their manuscripts accordingly, stating how many copies are required.

The date of publication of this part was August 15th.

NATIONAL MUSEUM MELBOURNE

NAT. HIST. MUSEUM, MELBOURNE



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PARROT FINCHES

(*Upper*); Blue-faced Finch, *Erythrura trichroa.* (*Centre*); Fijian Parrot Finch, *E. pealei.*
(*Lower left*); Pin-tailed Nonpareil Finch, *E. prasina.* (*Lower right*); Parrot Finch, *E. psittacea.*

The Emu

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"Birds of a Feather."

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NATIONAL MUSEUM MELBOURNE

Parrot-Finches (Erythrura).

BY G. A. HEUMAN, Sydney.

AMONGST the many species of Finches in the South Pacific Islands the Parrot-finches stand alone. Not only owing to their bright, attractive plumage and exceptionally smart movements, but also, on account of the ease with which they will breed in captivity, it is the hope and ambition of every aviculturist to add a few of them to his aviary.

The genus *Erythrura* is confined to the islands of the South Pacific and the Papuan and Malayan regions, and it is remarkable that no species of the genus occurs in New Zealand, Tasmania or Australia. Two specimens of *E. trichroa* have been obtained in North Queensland, but these were probably casual visitors or escaped birds.

All the species of the genus have the body and wings green with a tail of claret colour. The differences between the various species are mainly due to the different colouration of the head feathers.

In the Pacific these Finches are at home in New Caledonia, the New Hebrides, the Loyalty Islands, Fiji, Samoa, and New Guinea. The best known is *E. psittacea* from New Caledonia. The head and breast of this species is uniformly scarlet, the sexes being most difficult to distinguish. In shape and size they are not unlike the Australian Diamond Sparrow (*Zonaeginthus guttatus*), never very tight in feather, and with the tail a little elongated or pointed. They are exceptionally delicate when first caught and imported, but very hardy when once established in an aviary, and yet, in their native home, New Caledonia, I have seen them on a bleak, rainy day, when I felt perished myself and had to wear a heavy overcoat, hopping about as happily as if the sun were shining brightly.

Thinking the Blue-headed Parrot-finch of the New Hebrides (*Erythrura trichroa*) to be a cross between the New Caledonian one and the Pintail Nonpareil (*E. prasina*) of the East Indies, I made the experiment of crossing the two species. The offspring did not confirm my view, although the young were of very attractive plumage, showing the colouring of both parents and in shape like the slender Nonpareil.

The Parrot-finches from the New Hebrides, *E. trichroa*, are by no means as plentiful in their native land as *E. psittacea* is in New Caledonia; in fact, they seem to live in isolated districts. In shape they are similar to their relations in New Caledonia, but not nearly as attractive as aviary birds. Undoubtedly they are the hardiest of the species, but do not become so tame and it is much more difficult to induce them to breed in captivity. Their colouration is like that of *E. psittacea* on the body, but the feathers are tighter and the head is a very dark cornflower blue in the male, a more sooty blue in the female. To appreciate the colours one must see these birds in freedom in the sun.

When this species is crossed with *E. psittacea*, the offspring generally resemble the respective parents ; that is to say, if the male is *E.psittacea* the male offspring will show the same red colouration of the head, and the young females the blue head of the mother. This is also usually the case in the Gouldian Grass-finches (*Poephila gouldiae*). I noticed it repeatedly when breeding the red-headed Gouldian (*mirabiis*) with the black-headed (*gouldiae*). However, the crosses between the red and blue-headed Parrot-finches are sterile, at least they would not breed again *inter se*, nor would they mate with either of the original species, whereas the crosses between the Gouldians will again reproduce successfully, either *inter se*, or mated up to the original forms. This fact confirms the view that the Gouldians are merely colour variations of one species.

The most interesting of the Parrot-finches I consider to be those from the Fiji Islands, *E. pealei*. During my first visit to these islands in 1914 I was astonished to find no less than four forms, in addition to the typical one, which they resembled in general colour of body and shape, also in their ways and habits, only differing in the colouration of the head feathers.

The Fiji Parrot-finches are quite distinct from *E. psittacea* and *E. trichroa*, in that the body is more squat and the head is carried lower. They are very tight in feather, become exceedingly tame in captivity, and breed very easily.

The typical colour of this species is the same in the body as *E. psittacea*, but the head is dark blood red, the throat at the chin sooty black, shading into dark and then lighter blue, well over the chest. The female has the same colours only less bright. In old males the blue of the throat will extend as a narrow edging around the red of the head and cheeks.

Besides these, which I take to be the typical form, I found birds :—

(1) With blue heads, very much resembling the female of *E. trichroa*.

(2) With sooty black cheeks and head.

(3) With heads apparently purple, but really blue with red quill-like feathers intermixed in the blue, and lastly

(4) With yellow heads and yellow under-tail feathers, very similar to the copper or yellow coloured form one finds occasionally in Gouldians.

Birds showing these abnormal colours were not plentiful. It was before the breeding season when I visited Fiji in 1913 and the birds were flying in flocks, similar to those of Australian Redheads (*Aegintha temporalis*). In these flocks of 20 or 30 one might see three or four with heads coloured differently from the typical red-headed form.

During my recent visit with Mr. Waxman to these Islands I have been able to throw some further light on this colour question, as the breeding season was then in full swing and the birds could be observed and studied in true nesting pairs.

After most careful study I can now definitely state, that all the four colour-variations numbered above are peculiar to females; in each case the male to which they were mated was typically coloured. *Post-mortems* held on a number of them confirmed the conclusion I had come to.

What is the cause of all these colour variations seemingly affecting the females only?

So that there may be no misconception, I may point out again that *most* of the paired females were typical, similar to the male but duller in plumage, and only a minority were of the types enumerated under 1 to 4. Undoubtedly the offspring of these "mixed" colours breed and interbreed in the same way as the red (*mirabilis*) and black-headed Gouldians (*gouldiae*) and in that way reproduce the variation in colours. But how did these colour variations originate?

The other species of Parrot-finches I only know from hearsay, except the Samoan (*E. cyanovirens*), a bluish green bird, of which I saw a skin.

Those from the Loyalties are supposed to have blue heads with red throats, and a friend who saw them describes the New Guinea species as having a blue head with a red patch on it.

In their native state one might call them the Sparrows of the islands. During the breeding season they fly in pairs and nest in the gardens of the settlers and the natives. But, when the family has grown up they congregate and fly in flocks to places where food is plentiful. They are completely protected in Fiji, but quite unprotected in the New Hebrides and New Caledonia, whilst it is quite impossible even to get a permit to take any from New Guinea.

The nests, which may be built anywhere in shrubs or mango trees, are neat and round, and constructed of fibre or grass with a small entrance hole at the side. The birds lay from three to six white eggs of the Finch type.

The incubation of the eggs is very erratic, lasting from ten to twelve days. The female sits during the daytime; the male at night together with the hen.

The young are not fed until they are 24 hours old, probably to await the development of the iridescent turquoise beads (glands), two on each side at the base of the bill. It is remarkable that nature should provide light in this way and by it the number of birds in the nests can be counted. In this way the old birds are enabled to feed the babies in rotation, even when they fill the narrow entrance hole and their bodies shut out any possible light.

Similar iridescent glands are found in the bills of the baby Finches of the Northern Territory, including Gouldian Finches (*Poephila gouldiae*), Star Finches (*Bathilda ruficauda*) and Blood Finches (*Neochmia phaeton*), whereas the southern species such as the Sydney Wax-bill (*Aegintha temporalis*) and Diamond Sparrow (*Zonaeginthus guttatus*) do not possess these luminous beads, which disappear a few days after the babies leave the nest and they are of no further use. Young Violet-eared Finches from Africa show the same characteristics.

In captivity Parrot-finches prefer nesting boxes, which they line with coconut fibre and feathers. They bring up the young easily on ordinary millet seed and soaked bread and cake, but it is also essential that they should have some live food at that time, such as meal worms and gentles or their cocoons. The colour of the young is dullish green.

In conclusion, I want to draw attention to the remarkable individual smell of these birds, specially strong in *E. trichroa* and *E. pealei*, but similar in all no matter from what island they come.

The Yellow Rosella (*Platycercus flaveolus*) **in Monaro, N.S.W.**—Although somewhat out of its usual latitude, and probably driven thence owing to scarcity of food, I have twice met with the Yellow Parrot, or " Murray Smoker " (*Platycercus flaveolus*), on the Monaro, New South Wales, plains, but in both instances only odd birds appeared.

These beautiful wanderers, attired in chaste liveries of canary yellow and pale blue, flew and fed on the most amicable terms with flocks of the Common Rosella (*P. eximius*), which they somewhat dwarfed in the matter of size, so that the strangers were easily singled out as being of a species differing from that of their gorgeous companions.

Locally, these Parrots were often known as "White Rosellas," and held to be albino variations of the Rosella. They appeared on Monaro in very good seasons when the supply of grass and thistle seed on the plains was unusually plentiful; and, I think, too, their customary habitat on the Murray River and in its vicinity was at the time more or less drought stricken. These handsome Parrots have since been seen by other observers on the Monaro Plains, but never in any number, so that they may be considered as being mere casual visitors, like the King Parrots (*Aprosmictus scapularis*), which occasionally leave their coastal fastnesses and feed on hawthorn and elder berries in Monaro gardens.—H. V. EDWARDS, R.A.O.U., Bega, N. S. Wales.

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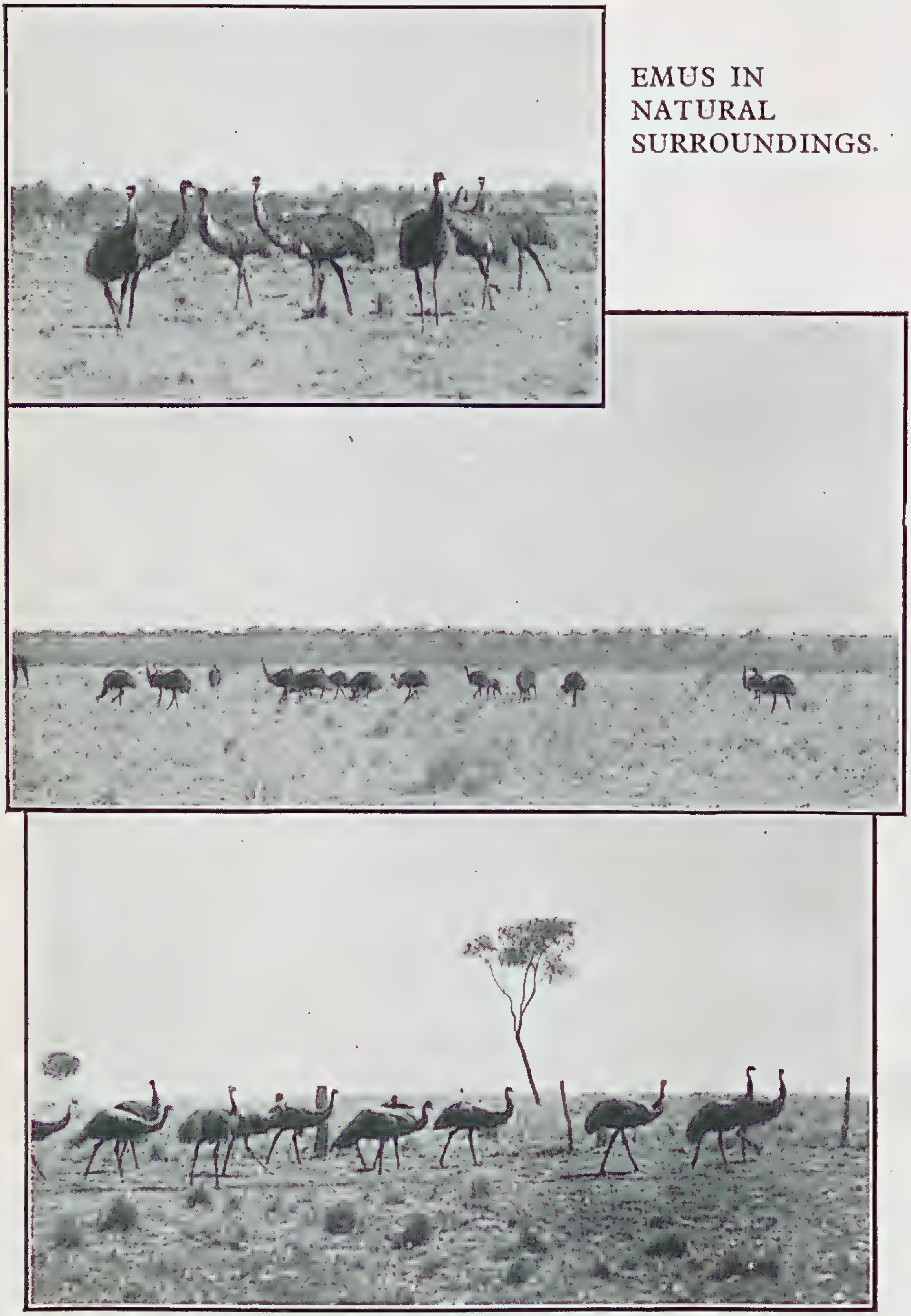
EMUS IN
NATURAL
SURROUNDINGS.



(*Top*) "STANDING INQUISITIVELY CLOSE TO A MAIN BUSH ROAD."
(*Centre*) "THESE BIRDS CONSUME A CONSIDERABLE AMOUNT OF GRASS."
(*Bottom*) "ON OCCASIONS THEY CAN BE SEEN STALKING AIMLESSLY ALONG A FENCE."

The Emu at Home.

By D. W. Gaukrodger, R.A.O.U., Blackall, Queensland.

(With Photographs by the Author.)

ALTHOUGH the Emu is still well-known, at least in every out-back district of Australia, it is doubtful if the great bird is more numerous anywhere than over the expansive Western Queensland downs country, and more particularly on the vast watershed of the Barcoo River. Here the open, undulating downs of Mitchell grass, interspersed with patches of timber and scrub, seem particularly to suit this bird's nature and habits.

Emus multiply quickly in good seasons, and the presence of large numbers in any district is evidence that seasons for several years have been bountiful. Conversely, when droughts come they are the first creatures to succumb. They do not appear to be able to exist without a certain amount of green food ; consequently, in rainless seasons it is common to see them dead or dying from the results. And as this " land of the Emu " is more or less liable to frequent and severe droughts, it can safely be said that Emus cannot become a serious menace, excepting, perhaps, in prickly-pear-infested areas and a few favoured pastoral districts.

From a grazier's point of view, when these birds are numerous they not only consume a considerable amount of grass, but they pollute the pastures so that the carrying capacity for stock is diminished. They also, by their blundering and awkward movements, do considerable damage to wire stock-fences. In areas infested with prickly-pear Emus become vehicles for the spread of the pest, but as their habits point to their lives being spent within a locality of small compass, it is only in a few localities that their numbers need restricting. Any legislation aiming at their total extinction would be an absurdity, and would certainly be looked upon in the future as a national calamity. The latest Queensland scheme for the prevention of useless destruction of our native animals and birds by way of proclaiming protective areas and reserves, carries the ring of a long-sighted policy, and to have the Emu included within the scope of the policy would give future Australian generations cause for thankfulness. There is very wide difference between wholesale destruction of our native animals and birds and discriminating measures for restriction in their numbers. Unless the Emu comes under some legislative protective scheme, heaven help him should his skin or feathers become at any time of marketable value !—and this is not a remote possibility ; for, like that other emblem of Australia, the little native bear, with its sleepy and mostly slow movements, the Emu easily becomes a victim to the merciless and avaricious hunter, or the target for some who are pleased to call themselves " sports."

The casual observer would expect the Emu, whilst incubating, to be very quiet. At other times the big birds are not very easily disturbed, and on occasions can be seen stalking aimlessly along a fence or standing inquisitively in groups within a couple of chains of a main bush road. When nesting, however, they are generally very wary and shy. An incubating bird may lower her head to the ground, apparently hoping to evade being observed, and only rise when one is within a few feet of her ; yet, once disturbed, she is likely to desert the eggs, or at any rate never return as long as anything strange exists near the site.

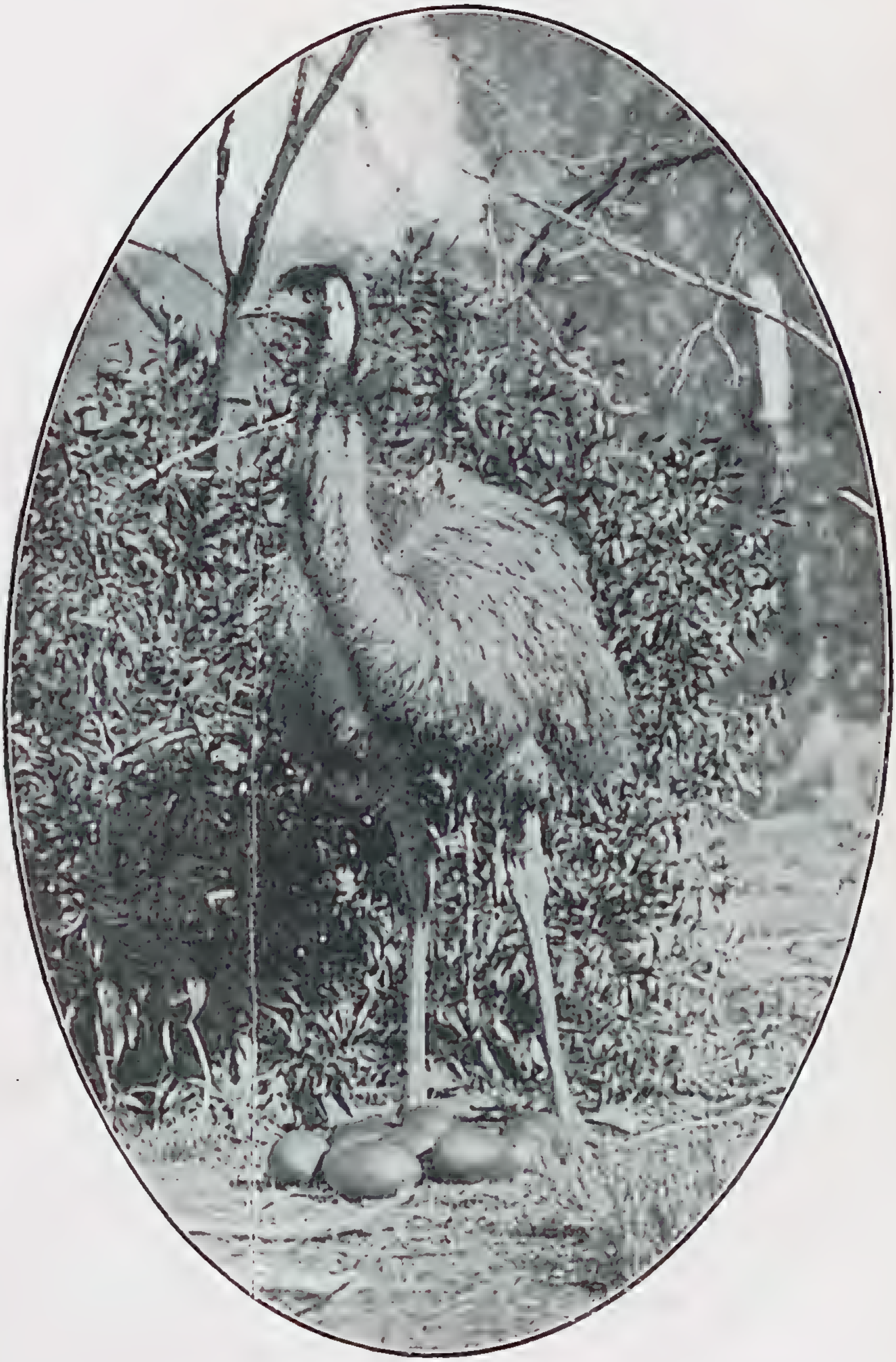
In these districts (Central Queensland) the breeding time is during the months of June, July and August, and at this period, when the season is good, eggs are very plentiful. When found fresh they are excellent for cooking purposes, one alone being equal to a dozen fowls' eggs. It is not surprising, therefore, that, especially in bushmen's camps, they are much sought after.

As a rule, little or no trouble is taken in forming a nest ; nor is any special attention paid to having it hidden or sheltered by logs or bushes. Consequently, from horseback the large green eggs—usually seven or eight in number—can easily be seen lying on the almost bare ground. It is not uncommon for two birds to occupy the same " nest," and then, possibly, there will be a showing of twice that number of eggs. On one occasion, when three birds rose, I counted, and afterwards photographed, twenty-one eggs !

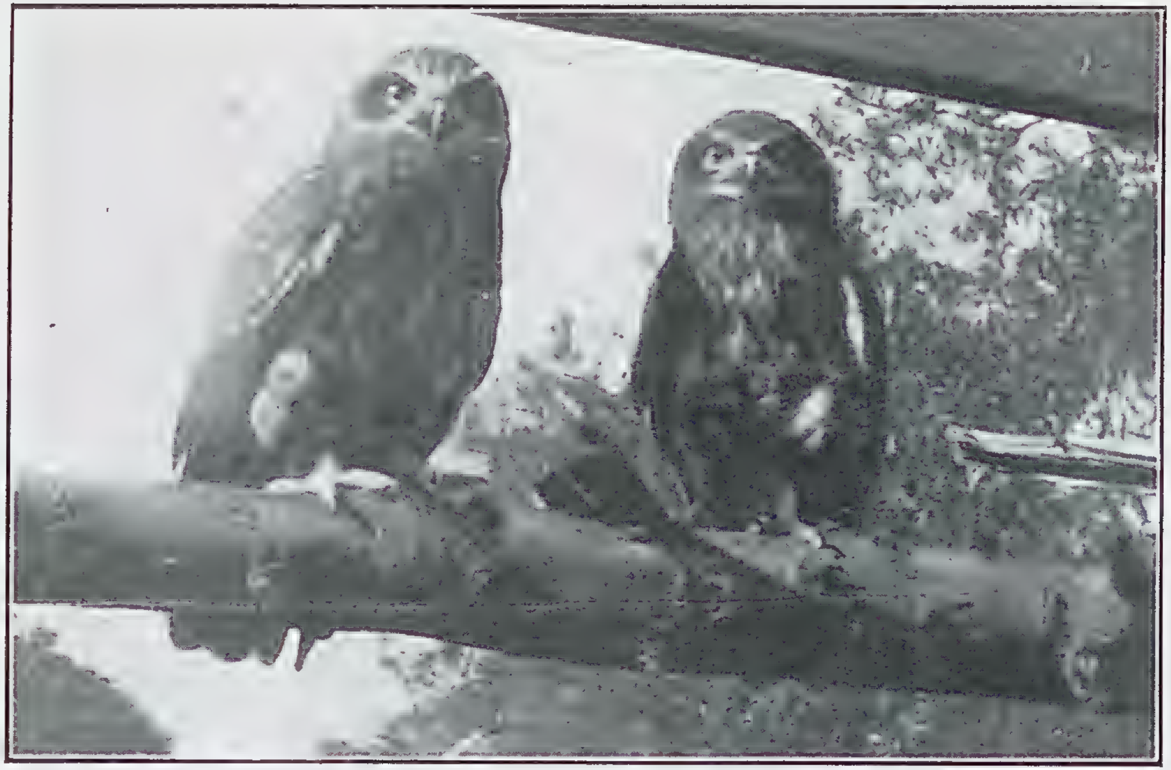
I endeavoured during several years to induce an incubating Emu to stay at her nest for photography purposes, but was always unsuccessful until the season of 1923. At last I came upon one that, after I had gained her confidence, began to make herself dangerously familiar at the hatching-date. The month was August and the locality about four miles north from Alice Downs homestead. In the nest were eight eggs, perhaps a little more protected by fallen sticks and bushes than is usual, but, nevertheless, having an open aspect so far as the bird was concerned. When at home she could command a clear view of all that was going on within a mile radius.

It was several days before I was able to work my half-plate camouflaged Sanderson camera sufficiently close to take photographs showing detail. When I had accomplished this the bird began to show resentment rather than timidity, and I more than once, when changing slides, was in fear that I would hurriedly have to take shelter behind a neighbouring bauhinia tree and leave " Sanderson " to be trampled in the dust !

The Emu has so many peculiar and unusual traits whilst incubating, that I shall risk being wearisome and give my experiences whilst taking a series of photographs. The nest was first discovered by one of the Alice Downs " musterers," who pointed it out to me. Hiding myself at a considerable distance, and using the aid of field-glasses, I studied the bird's movements at intervals for several days, in order to obtain guidance in my methods for future attack with the camera. I noticed that she never came straight to the nest but circled at about a hundred yards distance, and gradually closed in spirally until she



" SHE COULD COMMAND A CLEAR VIEW OF ALL THAT WAS GOING ON WITHIN A MILE RADIUS."



BOOBOOK OWLS.

Male—Right. Female—Left.

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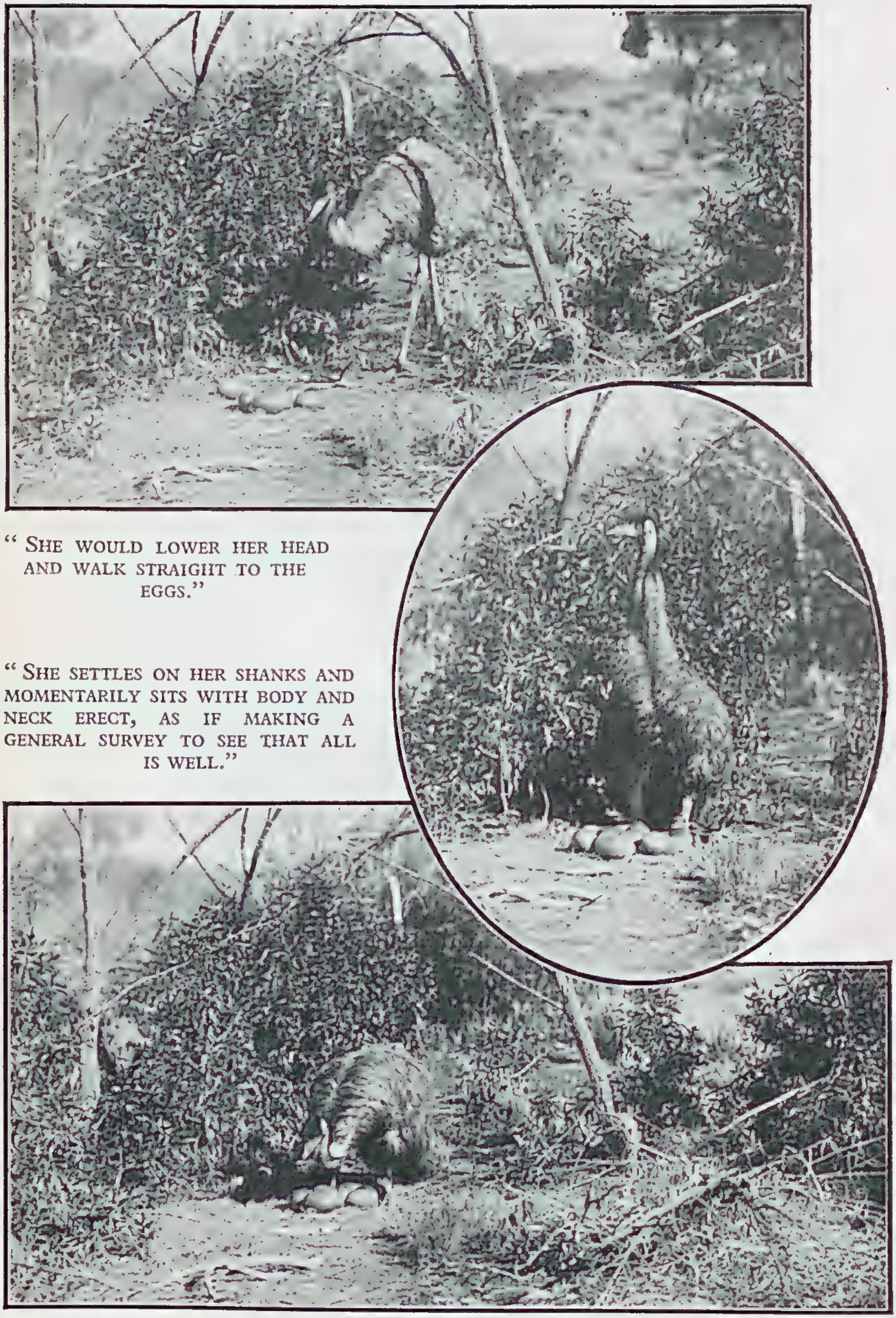

" SHE WOULD LOWER HER HEAD AND WALK STRAIGHT TO THE EGGS."

" SHE SETTLES ON HER SHANKS AND MOMENTARILY SITS WITH BODY AND NECK ERECT, AS IF MAKING A GENERAL SURVEY TO SEE THAT ALL IS WELL."

" AND BEGAN TO SHUFFLE FORWARD THE V-SHAPED LEGS GATHERING IN EGGS BENEATH HER."

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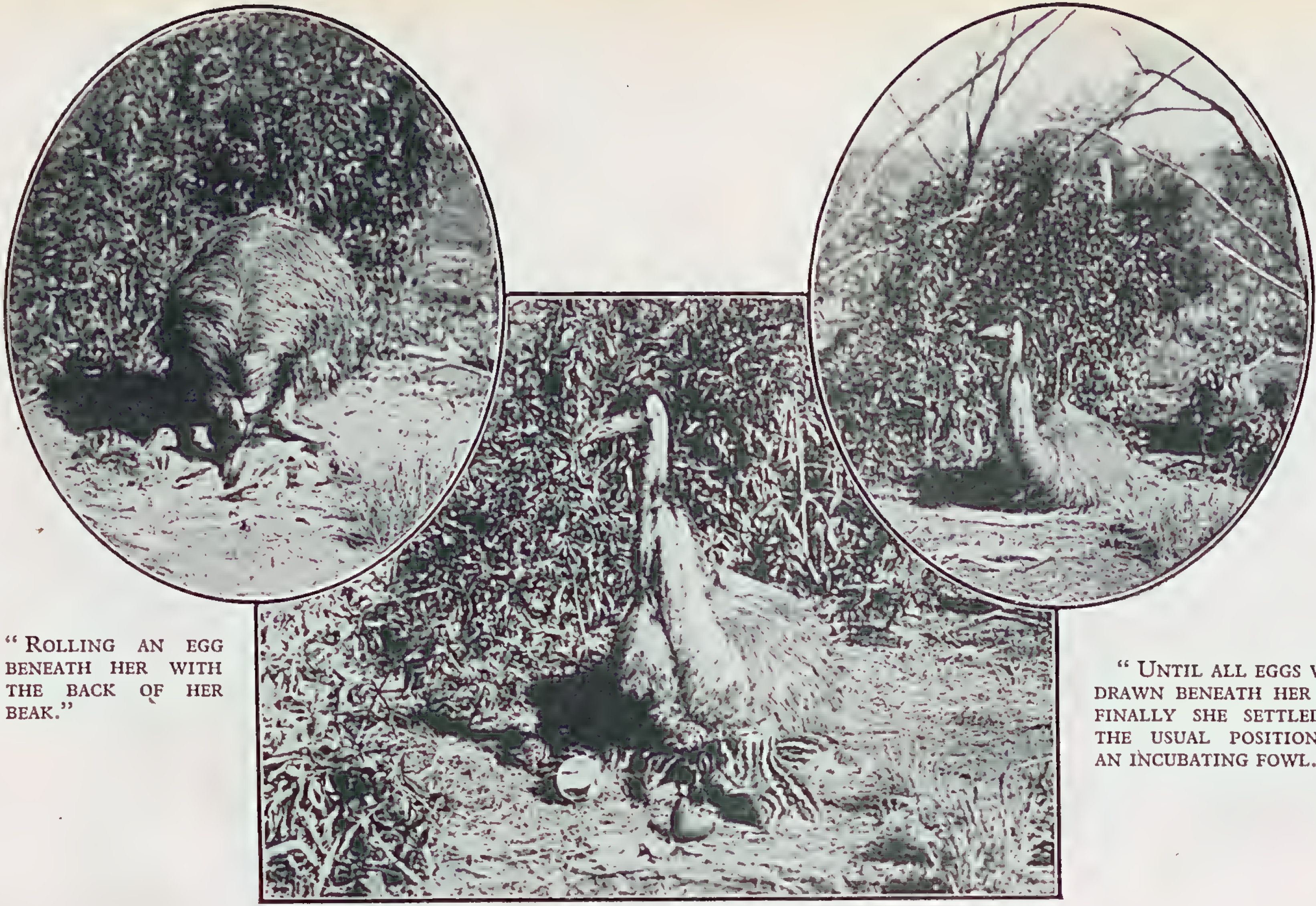


" ROLLING AN EGG BENEATH HER WITH THE BACK OF HER BEAK."

" UNTIL ALL EGGS WERE DRAWN BENEATH HER AND FINALLY SHE SETTLED IN THE USUAL POSITION OF AN INCUBATING FOWL."

A FAMILY PARTY.

was satisfied all was clear. Then she would walk the last few yards, with head down, straight to the eggs, from the same direction every time.

From this movement I took my cue, and so, on the following day, finding the bird at home, I went into the circling business myself. This was so successful that within an hour I passed her at a distance of only twenty yards ; then, without disturbing her, I left for home. On the morrow I returned and continued the circling, but this time with a bough camouflaging the half-plate " Sanderson," equipped with a Dallmeyer whole-plate lens. This I placed quietly down, about forty yards distant, and then left.

Giving the bird about an hour to get accustomed to what I had left behind me, I returned and did more " circling," and as I passed the camera took it along with me. Then, circling in a little closer, I placed it down again. By repeating this process, with intervals of rest, I finally got " Sanderson " within twenty-five feet of my objective. Subsequent proceedings presented no difficulties, but I continued to move about very cautiously, and, taking advantage of the bird's absence, built myself a hiding-bower a further twenty feet distant. There I waited to note movements (at the closer range) before entering seriously into photography of the subject.

I observed that the bird still persisted with the circling every time she returned, until, when close to the nest, she would lower her head and walk straight to the eggs. The first performance then was to walk three or four times around them. She then faced them, standing about thirty inches back, and moved forward, by six-inch steps, gradually spreading her feet apart until they were in a line with the nearest eggs. Upon this she would cautiously settle on her shanks, and keeping her knees close together, her feet wide apart, and toes just off the ground, she momentarily sat with body and neck erect, as if making a general survey to see that all was well. She then shuffled very gently forward, her whole weight on her knees, the V-shaped position of her legs and feet acting as a gatherer. From my hiding-place I could see the eggs rolled together (and hear the grating noise) until all eight were drawn beneath her. Finally, she settled in the usual position of an incubating fowl.

After completing photography of the bird and eggs, as an experiment I gave the eggs a more than ordinary spread whilst the bird was absent, and retired to my hiding-bower to watch results. The bird's movements on return were as before, excepting that she took a longer and still more careful observation, as if sensing the work of an intruder. Eventually, she got to work with her legs again in the V-shape and shuffled forward, spreading her feet until they were outside all the eggs, with the exception of one that I had purposely rolled thirty inches away. She eyed this isolated egg with intent, and seemed to judge it beyond the reach of her feet ; so she stretched her neck, and, reaching out, rolled the egg beneath her with the back of her beak, in a similar way to the action of an incubating barn-fowl.

I am convinced that the rolling action not only serves the purpose of placing the eggs beneath the Emu's cumbersome body without risk of breakage, but also turns the eggs so as to ensure an even temperature throughout from the bird's body.

The time between the first and last chicken being hatched was thirty hours. During this period little black ants were very troublesome to the new arrivals, but immediately the chicken left the egg it seemed naturally to protect itself by shaking and picking at the troublesome insects when they trespassed on the body.

Six hours after the last chicken emerged from the shell, the brood left the nest at a guttural call from the mother. But when I showed out, she gave a hissing warning and every chick dropped flat to the ground and lay motionless. Presently the old bird again gave the "all-clear" signal; then they scampered off ahead of the mother. She, at this point, commenced that true Emu habit of letting the chickens run before her, she giving all her attention to protecting them from the rear.

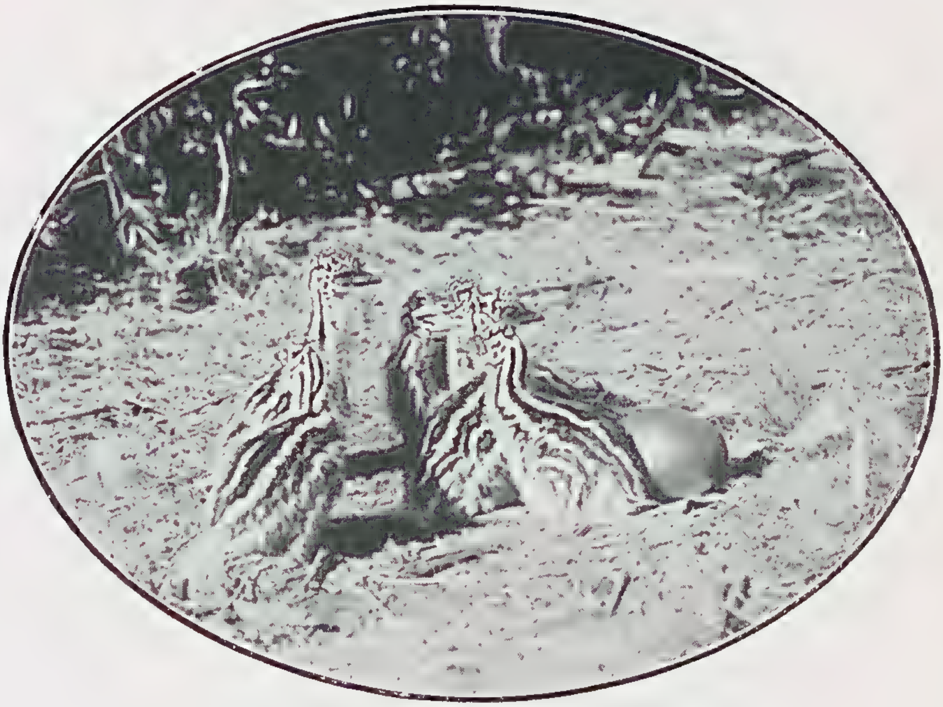
After completing the exposures of photographic plates on my principal subject, with the aid of a second camera I took a snap of the scene, with myself behind my hiding-place; and, finally, I took another of myself as I stood before the bird, at a distance of 12 feet.

At this point it seemed that I had reached my limit, for the bird began to ruffle her neck and tail feathers, and emitted a hissing and threatening sound. Anticipating her next move, I left! During the week I was photographing and making observations it struck me as strange that I did not see the second bird in the vicinity of the nest. It may have been that it had fallen victim to some shooter's rifle bullet and if so this was not only unfortunate for the "emu family" but also for me as it robbed me of an excellent opportunity of noting whether both birds take an active part during the incubation period. It may be that at this stage one bird only isolates himself or herself and solely attends to these duties, and it is somewhat remarkable that as a rule the protection of the family when in the wandering stages devolves on one parent alone. Occasionally, there is an instance when two birds are in evidence, but it is certainly the exception, and I cannot call to mind one instance where both birds have joined in the fight to protect the youngsters. When, say, a dog is the aggressor, the one bird in attendance will put up a very willing fight, using the feet in a downward kicking motion, and the successful hits are generally disastrous for the enemy.

I could arrive at no definite conclusion as to the sex of my nesting subject, but following a belief amongst bushmen that the larger and sleeker bird of the pair is the female, I surmised this to be such, as undoubtedly my subject was a very fine specimen indeed.

In bushmen's camps I have often heard arguments as to the speed of this gigantic bird, and I once had an opportunity of proving beyond doubt that it is at least as fleet as the fastest trotting horse. On this occasion I was in a motor car on a good track through open country with a fence running parallel with this track. The whirr of the car

COUNTING (PRESUMABLY) HER CHICKENS AFTER THEY ARE HATCHED.



WAITING FOR THE MOTHER'S GUTTURAL CALL

" SCAMPERING OFF ACROSS THE DOWNS."

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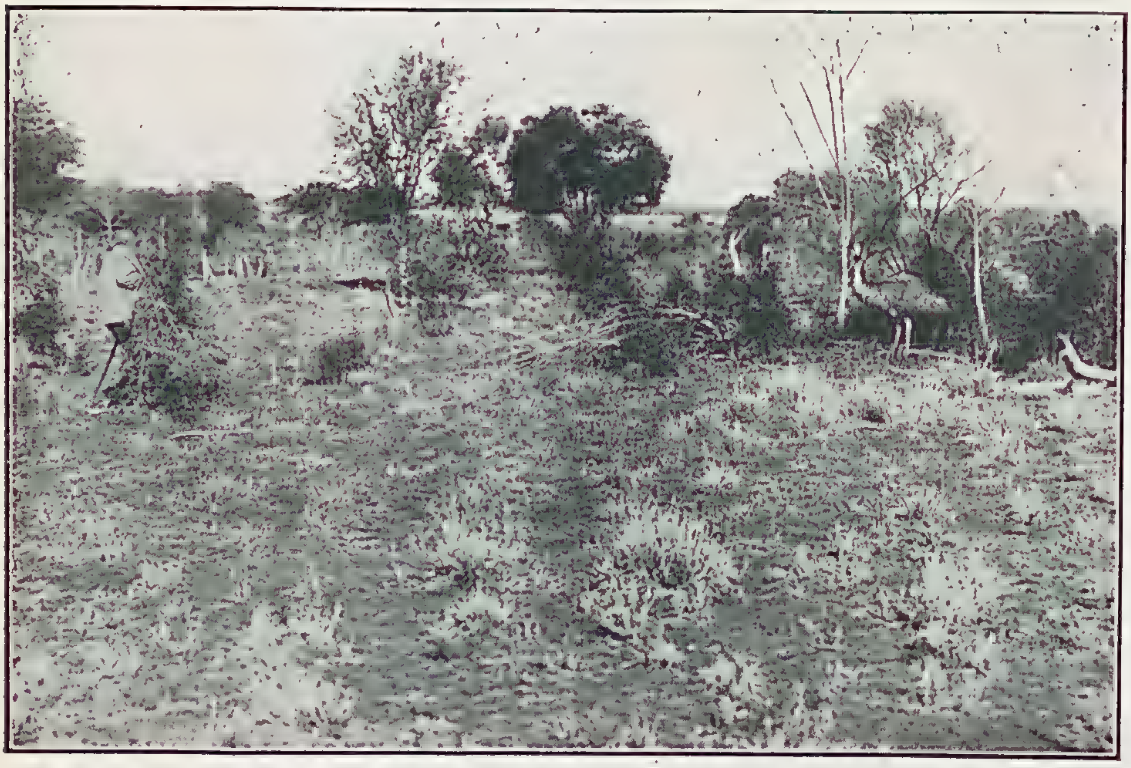

FIG. 1.
" WITH THE AID OF A SECOND CAMERA I TOOK A SNAP OF THE SCENE WITH MYSELF BEHIND MY HIDING PLACE."

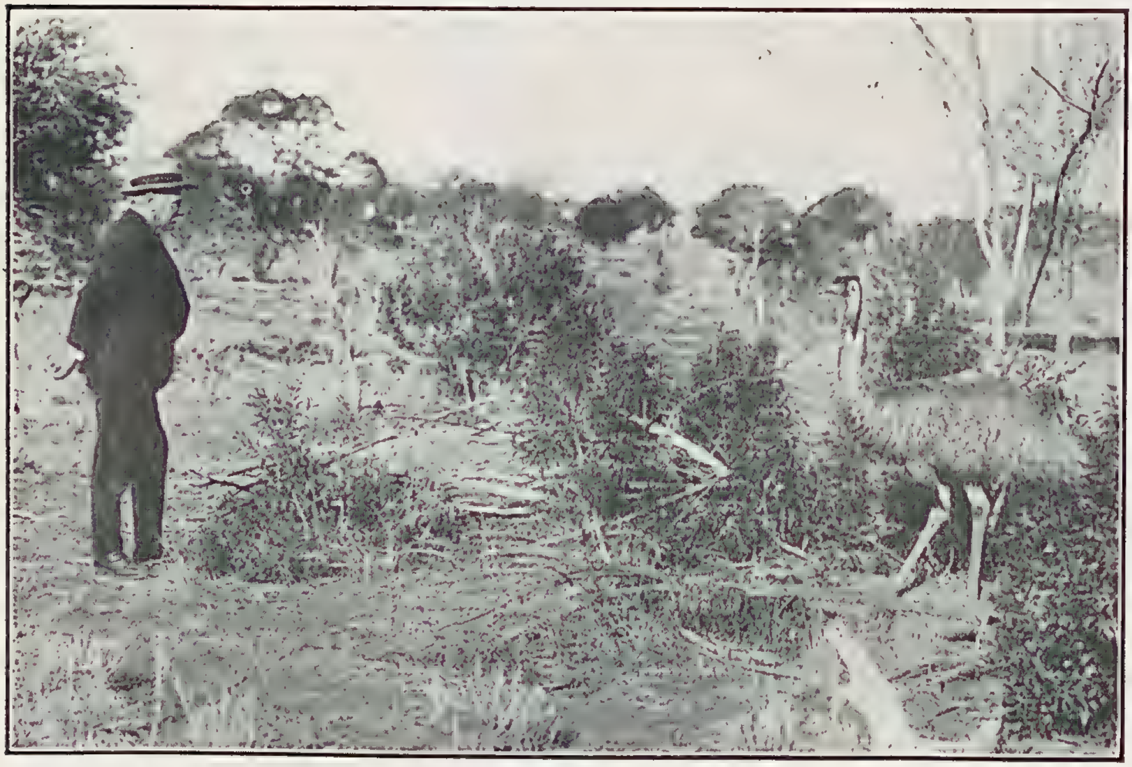

FIG. 2.
" AND FINALLY TOOK ANOTHER OF MYSELF AS I STOOD BEFORE THE BIRD AT A DISTANCE OF 12 FEET."

disturbed two birds and they started to race along the fence abreast of me. When they got well going I speeded up the machine until the speedometer needle pointed to 30 miles per hour, when I found I could tie with the birds. This pace when exceeded gradually took me past my contestants and they, being somewhat flurried, blundered sideways into the wire fence, and toppling awkwardly, made off in a right angle direction. These being big and well conditioned birds, I concluded that an emu's speed can safely be put down at half a mile per minute.

Thornbills of the Genus *Geobasileus.*

By A. G. CAMPBELL, J.P., Kilsyth, Victoria.

IN the first paper of this series (*Emu* xxv., p. 7) geographical variation of the Yellow-tailed Thornbill (*G. chrysorrhous*) was dealt with; in this second contribution the remainder of the species of the genus *Geobasileus* are reviewed.

GEOBASILEUS SQUAMATUS, De Vis.

(Varied-tailed Thornbill).

This species was first described by C. W. De Vis in *Proc. Roy. Soc. Qld.*, vol. vi., p. 249, being obtained from Herberton, North Queensland, a region 3000ft. above sea level.

In Mathews *Birds of Australia*, vol. ix., pl. 452, top left hand figure is a coloured drawing of *G. reguloides nesa*, which probably represents the southern race of this species. (Note the whitish lores, eyebrows and earcoverts, together with the yellow abdomen characteristic of *G. squamatus*).

Types are in the Queensland Museum, Brisbane, males and female.

Examination of Skins.—C.63 ☿, Herberton, Qld. (lent by Qld. Mus. co-type of *Acanthiza squamata*). Crown buffy olive; crescents light buff, very few; ear coverts, lores and over eye whitish; back yellowish olive, more citrine on rump; upper tail coverts strontian yellow; base of tail ochraceous buff; throat whitish; under surface citron yellow; faint flecks of brown on breast; bill and legs light brown; length 3.5 in.; bill .35 in.; wing 1.95 in.; tail 1.5 in.; tarsus .7 in.

6194 ♂, Rio Station, Dawson River, Q., like type, but crown and back of head greyish olive; the longer feathers of upper tail coverts have buffy bases, outer webs of tail feathers yellow; wing 2.05 in. (H. L. White collection).

22914 ♂, Gayndah, Burnett Riv., Q., like type, but breast duller in colour (amber yellow); wing 2.1 in.

22915 ☿, Gayndah, Burnett Riv., Q., similar to 22914. (Note, the above pair lent by Aus. Mus., Syd., is referred to in "Cat. Nests and Eggs," p. 287, collected by Geo. Masters, 1870).

Q 192 ♂, Ashgrove, near Brisbane, Q. (lent by Qld. Mus.), similar to type, breast squamose; abdomen and under tail coverts bright yellow.

NOTE.—In a letter dated 6.2.23, Mr. H. A. Longman, Director Queensland Museum, writes: "There appear to be no differences between our two birds."

REMARKS.

Acanthiza squamata was clearly associated with *A. reguloides* in the type description. Therefore it should now be placed in the genus *Geobasileus.* It differs from *G. reguloides* by its brighter (yellowish olive) back, its brighter (yellow) upper tail coverts, and its brighter (citron yellow) undersurface. It differs from *G. chrysorrhous* in having a clearly defined buff colour at the base of the tail feathers, and though having the light coloured lores, it has not the white spots on the forehead of that species. The wing formula is similar to that of *reguloides*, but the dark tail band is wider. These are reasonable and specific differences.

A characteristic feature is the light appearance of the face, due to the whitish lores, eyebrows and earcoverts. A small dark buff frontal spot is found on the forehead between the crescents and the base of the bill. Type shows the full colour, strontian yellow in the upper tail coverts, though type description states " with a slight reddish tint " which may be due to the colour of the tail base showing beneath.

Dawson River lies 700 miles from the type locality to the south-east, and Gayndah about the same distance, though nearer the coast. Specimens from these localities show only slight variation : one is greyer on the back of the head, the others are lighter on the breast. It is quite possible that the species occurs in intervening but elevated localities, wherever eucalyptus forest country is found above the level of the tropical scrubs. Most skins labelled *reguloides* from Queensland appear to be referable to this species. Skins are by no means plentiful, and specimens from Southern Queensland may prove gradation toward *reguloides.* It should be noted, however, that the skin from Ashgrove, near Brisbane, Q. 192, is radically different from a skin of *reguloides*, Q. 193, taken at Brisbane.

Herberton, Qld., on the 17th parallel, is the most northerly record for any *Acanthizinae*, but elevation accounts for its temperate conditions. Very little is known of this isolated region, which may yet prove to contain many interesting links with the fauna and flora of southern Australia.

G. s. nesa, apparently the type of the grey-crowned southern race, was obtained at the Bunya Mts., during the R.A.O.U. camp-out, 1919.

GEOBASILEUS REGULOIDES, Vig. & Hors.

(Buff-tailed Thornbill.)

In *Transactions*, Linnean Society, London, vol. xv., p. 226 (1827) Vigors and Horsfield described this species from New South Wales, presumably the vicinity of Sydney. " Some specimens were brought home by Mr. Brown from Port Jackson, where he obtained them in August, 1803."

Under the title Dwarf Warbler, var. B., Latham (see *General History*, vol. vii., p. 134, 1823) gives an excellent description of a specimen "in collection of Lord Stanley from New Holland," but as no binominal Latin name was attached, this is not accepted as the type description.

Type in the British Museum acquired with the Linnean Society collection.

Coloured figure in Gould's *Birds of Australia*, vol. iii., pl. 62, shows the dark undersurface of the race *australis*, remarking "extremely common in South Australia."

Mathews B. of A., vol. ix., pl. 452, right hand top figure, is the typical phase.

Skins No. 6254 and 140 in H. L. White collection may be considered plesiotypes, being typical of the species in the type locality.

Examination of Skin.—6254 ♂, Tarana, N.S.W. (type of *G. tarana*, Mathews). Crown brownish olive, becoming olive on back and brighter citrine on rump; frontal feathers tawny; forehead with small crescents of warm buff; upper tail coverts warm buff, tipped cream; base of tail feathers ochraceous buff; throat cream with dusky fringes; breast and abdomen colonial buff; flanks a little darker; length 3.8 in.; bill .3 in.; wing 2.0 in.; tail 1.5 in.; tar. .7 in.; bill and legs, brown.

140 ☿, Roseville, N.S.W., like 6254, but forehead around eye and ear coverts more tawny; under tail coverts warm buff.

6244 ♂, Roseville, N.S.W., like 6254. but under surface brighter; throat whitish.

6245 ☿, Roseville, N.S.W., upper surface very dirty or dingy (suburban) appearance; under surface still more so.

6246 ♂, Turramurra, N.S.W., like 6254, but dusky fringes to throat and breast less noticeable.

86, Sydney, N.S.W.
6236 ♂, Bourke, N.S.W.
11314, Wallerawang, N.S.W.
6239 ♂, Springvale, V.
507 ♂, Croydon, V.
309a ♂, Healesville, V.
6238 ☿, Bayswater, V.
All similar to plesiotype

6248 ♂, Kilsyth, V., like plesiotype, but back darker; upper tail coverts darker, not being tipped cream; under surface dull.

* * *

85 ☿, Macaulay Ranges, N.S.W., darker than 6254 on under surface; more prominent dusky fringes on throat; under tail coverts warm buff, tipped cream; bill .35 in.; wing 2.1 in.

6971, Grampians, Vic., base of tail darker (ochraceous tawny) than 6254; throat whitish; breast and flanks chamois.

6241 ♂, Parwan, V., like 85, darker, with bright tawny frontal patch and abundant dusky fringes to throat and breast.

2208 ♂, Lower Plenty, V., 369 ♂, Whittlesea, V., both dark below like 6241, but fewer dusky fringes on throat.

89, Mt. Barker S.A., upper coverts and base of tail darker than 6254; under surface chamois colour; bill .38 in.

* * *

83 ♂, 84 ♂, New England, N.S.W. 2,000 ft. elevation, lighter than 6254; crown and back greyish olive; crescents smaller and cream coloured; throat plain whitish, faint dusky fringes on breast; wing 2.2 in.

6252 ♂, 6251 ♂, Scone, N.S.W., both lighter than plesiotype; crown greyish olive but abdomen brighter cream; under tail coverts warm buff.

6233♂, 6235♂, Cobborah, N.S.W., both like 6252, but under surface duller straw colour; under tail coverts straw.

419 ☿, Cobborah, N.S.W., like 6233, but base of tail and under surface darker, legs brown.

418 ☿, Cobborah, N.S.W., like 6233, but legs black.

420 ♂, Cobborah, N.S.W., immature, crown and back brownish olive, like 6254, but crescents obscure; secondaries edged ochraceous tawny, also tail tips; under surface cream, darker on flanks. (Foregoing three skins lent by T. P. Austin).

* * *

6237 ☿, Nhill, V., paler than plesiotype; upper surface light greyish olive, without the citrine tinge; wings lighter fuscous; tail bar narrower; undersurface dull cream; throat and breast whiter; bill .35 in.; wing 1.9 in.

6237a ♂, Winiam, near Nhill, V., Aug., 1923, paler than plesiotype; forehead crescents restricted in area ,also upper tail coverts, which are clay coloured; base of tail ochraceous tawny; wing 2.0 in.

* * *

Q 193, no sex, Brisbane, Q. (Lent by Qld. Mus.). Much duller on upper and under surfaces than plesiotype; upper coverts tinged cream; base of tail ochraceous buff.

87 ☿, Knitpo, S.A., much duller than plesiotype on head and back; crescents indistinct; under surface colonial buff, no dark fringes on throat or breast; bill .4 in.; wing 2.1 in.

90, Coromandel, S.A., similar to 87, few crescents; tail bar narrow.

88 ☿, Knitpo, S.A., like 87, but lighter still on crown and under surface.

REMARKS.

From a number of skins taken over four States, Queensland, N.S.W., Victoria and South Australia, it is plain that a great deal of individual variation exists, chiefly in regard to the tones of buff found in upper tail coverts and base of tail, also in general tone of undersurface and colour of legs. But variation amounting to subspecific difference will be hard to determine. A difference of one or two tones in colouration is a doubtful factor, especially when specimens frequently occur which slip back to the original colours of the typical. Many parts of N.S.W. and Victoria provide skins that are identical in markings with those from the vicinity of Sydney. Type race has crown brownish olive, base of tail ochraceous buff, undersurface colonial buff.

Northward, however, in New England, an elevated region over 2000ft., specimens 83-4 are noticeably lighter on upper and under surfaces, back of head greyish, and throat plain whitish, bill and wing both longer than typical. Skins from Scone and Cobborah are also grey crowned. These appear to be reasonable grounds for a sub-species which has been named *A. r. cobbora* Mathews (see *Aus. Av. Rec.*, vol. ii., p. 130).

Southward, birds are found sometimes with tail coverts tipped with lighter colour, sometimes not, sometimes with throat and breast distinctly scaly (that is, feathers having dusky fringes) sometimes not so.

Reaching the Grampians in Western Victoria, the bird shows the darkest (ochraceous tawny) coverts and tail base. This, together with the darker undersurface (chamois colour) found also in Mt. Barker, S.A., answers to the description of *G. australis* North, from Woodside Hills, S.A. (see *Cat. Nests and Eggs*, p. 287).

It should be noted that several specimens obtained near Melbourne, also in N. S. Wales, answer to that description, and at the same time many specimens in all regions are like the type race. Localised variation is indicated in so far as the species inhabits well timbered country, or more open places.

Several skins are worthy of notice as indicating a pallid race of *G. reguloides*, where the species has been found well out on tertiary country scores of miles from its original home, which is on the higher and older land surfaces. No. 6237 from Nhill is much paler than typical, being without the citrine tinge to the back and rump, throat and breast whiter, tail bar narrower, colour patch on tail coverts restricted in area. A bird taken in a good season, 1923, is very little brighter. Similar skins come from Kuitpo, S.A. The only specimen examined from Queensland is of this same pallid kind.* It is labelled Brisbane, but may have been taken in open and dry country. It is a mature bird, and, like the S.A. skins, entirely lacks the citrine tinge to the back, while base of tail is lighter still. It is quite unlike skin Q 192, a typical *G. squamatus* from near Brisbane.

Furthermore, the Nhill specimens come from near the type locality of *Acanthiza winiamida*, but they have nothing in common with that dark species. Probably they reached the district from opposite directions, *reguloides* working its way north-west from the Grampians, 40 miles away, keeping always to the timber, and *G. hedleyi winiamida* coming in from the South Australian side across the open banksia-covered moorlands.

G. reguloides is not recorded further west than the South Australian highlands, but there is no doubt that *G. tenuirostris* is the western and far interior species from the same stock. Between them all links and inter-gradations have disappeared, and the latter, without the buff coloured base to the tail, is recognised as a good species.

GEOBASILEUS TENUIROSTRIS, Zietz.

(Small-billed Thornbill.)

This species from Leigh's Creek, interior of South Australia, was described by A. Zietz in *Trans. Royal Soc., S.A.*, Vol. XXIV., p. 112 (1900).

Mathews, *Birds of Australia*, Vol. IX., pl. 451, left hand figure, purports to be this species under the name *Acanthiza iredalei*, but the drawing does not show upper tail coverts light coloured.

Type is in the South Australian Museum.†

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*This is a new aspect in sub-species, *i.e.*, somewhat similar variations occurring independently of one another in widely separated localities, both lighter (skins 83, 87 and Q 193) and darker races (skins 85, 6241 and 89), being noted in each of three States.

†Dr. A. M. Morgan writes, Ap. 4, 1924. "Type specimen *A. tenuirostris*, Leigh's Crk., now Copley, bears the date Aug., 1895. Length 93 ins.; cul. 6.25; wing 4.7; tar. 15. Mr. Waite, Mr. Sutton and myself carefully compared it with your Day Dawn specimen (99) and there is absolutely no difference."

Nos. 2193 and 99 may be considered typical of the species though not from the type locality.

Examination of Skins.—64 ♀., Leigh's Creek, S.A. (Edwin Ashby, col.), upper surface greyish olive, becoming dull citrine on rump; forehead feathers dark, tipped with large crescents light buff; upper tail coverts warm buff; tipped cream; tail mostly black, tips white; throat cream with faint dusky fringes; breast and abdomen cream buff; bill and legs brown; length 3.6 in.; bill .3 in.; wing 1.85 in.; tail 1.5 in.; tarsus .7 in.

99 ♀, Day Dawn, W.A. (A. W. Milligan, col.), like 64, but slightly greyer on back of head; upper tail coverts all cream colour; base of tail light fuscous, less white on tips; flanks olive buff. (Identified with type by Dr. Morgan.)

63 ♂, Waddilinia, W.A., immature, like 64, but forehead crescents not so distinct, and showing wide dusky fringes; frontal patch and chin cinnamon buff; wing coverts and secondaries edged drab.

2193 ♂, 2194 ♀, Lake Way, W.A., both similar to 99.

2196 ♀, Naretha, E.W. Rly., like 99, but faintly greyer on crown; bill and legs black.

510 ♀, Nullabor Plain, W.A. (this and four following lent by S. A. White).
543 ♀, Moorilyanna Well., Cen. Aus.
542 ♂, Wantuapilla Swamp, S.A.
509 ♂, Iron Knob, S.A., all similar to 64 and 2193.
508 ♀, Mt. Lyndhurst, S.A., like 509, but crescents not so distinct.

* * *

2207 ♀ 2200 ♀, Shark Bay, W.A., upper surface drab (lighter than 2193), forehead crescents small and not as distinct; under surface light cartridge buff.

2197 ♂, Shark Bay, W.A., immature, like 2207, but shows olive tinge on back and rump; abdomen yellowish; dusky fringes on throat.

2195 ♂, Carnarvon, W.A., immature, similar to 2197; bill small, .25 in.

REMARKS.

This is another good species of eremian habitat confined however, mainly, to samphire* areas which are a feature of the salt lake regions occurring throughout the dry interior.

The correct type locality is Leigh's Creek, South Australia. Specimens from Lake Way and Day Dawn show remarkably little, if any, variation over the great distance (1300 miles) which separates them. This would be accounted for by the strictly localised habits of the species in similar conditions of the dry interior. Though not plesiotypes, they are typical of the species.

The only indication of reasonable sub-specific difference in the above specimens, is in those from Shark Bay, W.A., where the olive tinge is lost from the upper surface and drab is the prevailing tone.† This appears to be the effect of the coastal climate on the desert species (see map *Emu* XXIII., p. 29).

I consider this species should be placed with *Geobasileus* because of the wing formula and the wide band on the tail. It has affinity with *G. reguloides* and appears to be the western or interior species, but lacks the prominent buff coloured base to the tail feathers.

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*Botanically *Salicornia* salt-loving plants, growing in saline depressions, which store water in bead-like sectional stems.

†I propose the sub-specific name *uranie* for this race in honour of the French scientific expedition which (in a ship of that name) in 1818 examined the desolate shores of Shark Bay, and but for the misfortune of losing all the natural history specimens, might have given us this race as type of species.

GEOBASILEUS HEDLEYI, Mathews.

This species was described by G. M. Mathews in the *Austral Avian Record*, Vol. I., p. 78, being obtained in the Meningie district (heath country), 75 miles south east of Adelaide, S.A.

Figure, *Emu*, Vol. XIX, pl. 19 is the darker race, *G. h. rosinae* (see A.A.R., Vol. II., p. 9).

Mathews, B. of A., Vol. IX., pl. 453, shows the type (top figure) and *rosinae* (bottom figure).

Type is in Tring Museum, England.

Specimen, male, taken at Winiam, 29/8/1923, having been identified with type* may be considered as the plesiotype in Australia.

Examination of Skins.——R.6973 ☿, Winiam, near Nhill, Vic. (Type, *Acanthiza winiamida*, F. E. Wilson), upper surface dark greyish olive, becoming olive on rump; forehead blackish with light buff crescents; upper tail coverts warm buff, tipped cream; tail black, tipped white on three outer feathers; throat whitish with indistinct striations; flanks and sides breast extensively deep olive buff; bill and legs black; length 3.6 in.; bill .3 in.; wing 1.9 in.; tail 1.5 in.; tarsus .8 in.

R.7455 ☿, Winiam, Vic., immature, like R.6973, but forehead drab with few buff crescents; throat flecked, under surface dingy. (These two skins are in Nat. Mus. col., Melbourne.)

♂, Winiam, V., 29.8.23, like R.6973, but crescents more plentiful; upper coverts deeper (chamois); centre abdomen and under tail coverts cream buff; throat and upper breast heavily flecked; base of tail fuscous. (Plesiotype identified with type by Dr. Hartert.) Another pair of birds taken at Winiam about the same time are similar to above.

* * *

91 ♂, St. Kilda, S.A., darker than plesiotype; upper surface being dark brownish olive; upper tail coverts cinnamon buff; less white on tail tips; throat cream heavily flecked; sides of breast and flanks darker (buffy olive); bill .32 in.; tarsus .7 in.

93 ♂, 94 ♂, St. Kilda, S.A., similar to 91; under tail coverts cream, the longest having fuscous centres.

92 ☿, St. Kilda, S.A., like 91, but forehead crescents fewer.

6243 ☿, 6242 ☿, St. Kilda, S.A., similar to 92.

6577 ♂, St. Kilda, S.A., like 91, but nondescript dark tones; upper and under surfaces not bright; crown fuscous, distinctly abraided; tail very much frayed.

REMARKS.

This, the most recently discovered species of Thornbill, was taken near the mouth of the Murray River, S.A. The only specimens obtained at the time were sent out of Australia. Nor is the type description of sufficient lucidity to be a guide to the characters of the species.

Specimen R.6973 in the National Museum collection is labelled *Acanthiza winiamida* type (see *Emu*, Vol. XVI., p. 169), obtained in the neighbourhood of Nhill, Vic., about 120 miles south east of Meningie.

The possibility of *winiamida* and *hedleyi* being one and the same species was not determined until August, 1923, when further specimens were obtained. On being submitted to Dr. Hartert, Tring, for

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*Dr. Ernst Hartert, Tring Museum, 3.10.23, writes: "The bird agrees perfectly with our two specimens (co-types A. *i. hedleyi*) except that the white on the tail is a little more pronounced in yours. I have no doubt it is the same bird."

comparison with the type, the report was received, "Agrees perfectly."

This is an interesting ally of *G. tenuirostris*, exhibiting in the dark race *rosinae* the same trait of inhabiting swampy samphire-covered flats, but the type race is found on heath covered moorlands. The structure and colour bands of the tail are somewhat alike in both species, but there the similarity ends. There are reasonable and sufficient grounds to warrant separation as distinct species.

G. hedleyi		*G. tenuirostris*
olive	back	greyish
small	forehead crescents	large
fuscous	crown	greyish
boldly flecked	throat	small fringes
very dark	flanks	buffy
black	bill and legs	brown

All of these differences are due to the fact that *tenuirostris* lives in a rainfall of 10 inches or under, *hedleyi* in a rainfall of about 20 inches.

The throat is perhaps the most striking feature, in the former being almost plain, but in the latter it is boldly striated or flecked much in the manner of a true *Acanthiza*. The feathers have heavy dusky fringes which so coalesce or overlap that they appear as dark striations and they can be re-arranged by moving the feathers about with the finger.

The sub-species *rosinae* from St. Kilda, 20 miles north of Adelaide, is distinguishable from the type race by its darker (brownish olive) back, and its darker (buffy olive) under surface, but chiefly by the centre tail feathers, being wholly black, not having lighter base and tip as is typical.

GEOBASILEUS UROPYGIALIS, Gould.

(Chestnut-tailed Thornbill).

John Gould described this species from Liverpool Plains, N. S. Wales, but no notes having been sent with specimens, was "compelled to silence" concerning its habits (see *Synopsis Birds of Aust.*, Part IV., pl. 60, 1838).

Coloured figure is found in Gould, *Birds of Aust.*, Vol. III, pl. 56 (the darker race).

Mathews, *Birds of Aust.*, Vol IX., pl. 450, top figure, shows the pallid interior race.

Type, male, No. 17602 (525) is in Academy of Sciences, Philadelphia, U.S.A. A specimen from the Gould collection is in the British Museum.

Nos. 2210 and 2209 in H. L. White collection may be considered plesiotypes.

Examination of Skins.—2210 ♂, 2209 ♀, Grenfell, N. S. Wales, upper surface olive brown; crown tinged russet; back tinged sepia;

upper tail coverts and base of tail cinnamon rufous; faint dusky fringes to throat feathers; sides of breast grey; flanks ochraceous tawny; length 3.8 in.; bill .35 in.; wing 2.0 in.; tail 1.5 in.; tarsus .65 in. Under tail coverts ♂ light buff, ♀ as dark as flanks.

18547 ♂, Moolah, Darling Dist., N.S.W. (lent by Aus. Mus., Syd.), similar to 2210, dark plumage; bill and legs brown.

2099 ♀, Cobborah, N.S.W., immature; upper surface grey, tinged buffy brown; crescents indistinct; upper coverts and base of tail tawny; throat grey with indistinct marks; tail short.

2223 ♀, Rutherglen, V., like 2210, but larger; wing 2.1 in.; tarsus .68; bill black; under tail coverts light buff; lighter than flanks.

2221 ♂, Nhill, V., similar to 2210; crescents large; bill brown.

2222 ♂, Nhill, V., base of tail lighter (tawny) than 2221, also under tail coverts; crescents smaller; bill black.

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2217 ♂, Kow Plains, V. (mallee), like 2210 above, but lighter below; flanks tinged buff, under tail coverts nearly white.

2216 ♀, Kow Plains, V., smaller than mate; bill black; under tail coverts darker (light buff).

524 ♀, Millewa, Murray River.

2219 ♂, 2220 ♀, Linga, V. (mallee), all similar to 2217.

115, no sex, Raak, N.W. Vic., similar to 2217, abdomen and under tail coverts white. (This pair in A. W. Milligan collection).

116, probably ♀, Raak ,N.W. Vic., like 115, but flanks darker.

57 ♂, 55 ♀, Pungonda, S.A., similar to 2221; large crescents ♂, half as many ♀

58 ♂, Morchard, S.A., like 2210, crown more russet; flanks and under tail coverts lighter.

59, Lake Gillies, S.A., upper tail coverts perceptibly lighter (tawny) than 2210; under tail coverts warm buff as dark as flanks.

502 ♂, East-west Rly., 400 miles from Port Augusta (lent by S. A. White), a dark bird, similar to 2210; wing 2.1 in.; under tail coverts dark.

* * *

60, Leigh's Creek, S.A. (Edwin Ashby col.), upper surface drab, tinged buffy brown on back, much lighter than 2210; crescents small; coverts and base of tail tawny; under surface mostly white; flanks tinged buff.

2102 ♂, Naretha, E.W. Rly., W.A., like 60, but upper coverts darker (ochraceous tawny); under coverts faintest buff with a few fuscous blotches.

2089 ♂, Zanthus, E.W. Rly., W.A.

2224 ♂, Lake Gairdner, S.A., both similar to 60.

2213 ♀, Musgrave Ranges, S.A., like 60, but flanks and under tail coverts similar light buff.

2214 ♂, Everard Ranges, S.A., forehead crescents more prominent than 2224; throat and breast with dusky fringes; flanks darker.

503 ♂, Youlimia Water, Cen. Aus. (lent by S. A. White), similar to 2214.

310 ♂, McDonnell Ranges, C.A. (in Nat. Mus., Melb.), like 2224, but darker above; crown russet; base of tail ochraceous tawny; breast greyish with faint dusky fringes; flanks and under tail coverts faintest light cartridge buff; bill .3 in.; tarsus .6 in.; black.

7530, Palm Valley, Hermansburg, C.A.

7532 ♀, Finke River, James Range, C.A., both like 310, but upper surface slightly darker; breast lighter (no dusky fringes); flanks tinged buff; under coverts whitish.

24353 ♂, 24354 ♂, Bourke, N.S.W. (lent by Aus. Mus., Syd.), upper surface like 2210, but under surface white, flanks tinged buff.

2215 ♂, Ooldea, S.A., similar to 60.

2212 ♀, Ooldea, S.A., like male, but lighter upper tail coverts and darker flanks.

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312 ♂, Kychering Soak, E.W. Rly., S.A., 17.12.1908, upper surface pallid drab, lighter than 2224; crescents few; base of tail lighter (cinnamon); less white on tail tips; shafts of secondaries frayed brown; under surface white; flanks tinged buff; wing 1.9 in. (Type of *G. u. eremus*, Emu, Vol. XXII., p. 65)

304 ☿, Kychering Soak, S.A., like 312, upper tail coverts show two tones, cinnamon with tips paler, ochraceous buff (the only specimen with this feature); bill and legs black; under coverts white like rest of under surface.

314 ♂, Kychering Soak, S.A., like 312, with edges of secondaries and tail tips tinged cinnamon. (These three are in Nat. Mus., Melb.)

6972 ☿, Ebano, W.A., similar to 312, under surface plain white. (This and two following lent by W.A. Mus.).

6969, Ebano, W.A., similar to 6972, crescents few and small.

6978, Ebano, W.A., immature, similar to 314; secondaries edged cinnamon.

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6953 ♂, 6949 ☿, Yandanooka, W.A. (this pair lent by W.A. Mus.), similar to 310, but base of tail lighter in ☿.

61, Callion, W.A., similar to 310.

2256 ☿, Lake Way, W.A., like 2224, but fringes of throat feathers distinct; flanks darker than under tail coverts.

110, Doodlakine, W.A. (A. W. Milligan col.), a light form of 2224; crescents few but distinct; wing 1.9 in.

62 ♂, Moora, W.A., crown and back like 2210; bill larger .35 black; upper coverts and base of tail lighter (tawny). (Type *G. u. moora,* Emu, Vol. XXII., p. 65.)

2207 ♂, 2206 ♂, Mogil Mogil, N.S.W., upper surface like 2224, but bill heavier .35 in.; all under surface stained light buff; flanks darker.

10590, 10591, Yandambah, N.S.W. (lent by Aus. Mus., Syd.), similar to 2207), large bill and stained under parts.

REMARKS.

It will be noticed that there are at least two races, one being in the dry far interior and the other on the fringe in better conditions.

The type race is a boldly marked bird, with a russet sheen about the crown and a sepia tinge on the back; upper tail coverts and base of tail bright cinnamon rufous or hazel; under surface greyish; breast greyer; flanks and undertail coverts distinctly warm buff. Range, Qld., N. S. Wales, Vic., and parts of S. Aus.

The pallid form in conditions under 10 inch rainfall has upper surface drab colour, the russet sheen of crown almost lost, the sepia quite gone from the back; base of forehead feathers more fuscous than black, white crescents fewer; upper tail coverts and base of tail lighter (tawny); undersurface whitish; flanks tinged only with buff.

A. u. condora is the prior name* for this sub-species. Range, Interiors of S. Aus., W. Aus. and N.S.W.

Skin 502 from 400 miles west of Port Augusta is a singular instance of a dark plumaged bird being taken within the range of the pallid race.

G. u. eremus is the extreme form inhabiting the soaks or oases of the true desert in both S. Aus. (312) and W. Aus. (6972), indicating that the range of the species was once right across Australia, but that the development of desert conditions gradually removed it from the more arid portions.

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*See List of Birds of Australia, G. M. Mathews, p. 216.

Skin 62, which comes from inside the coastal belt of good rainfall in Western Australia* is a good sub-species, representing the western form, separated from the type race in the east by the vast interior region with its pallid and eremian races.

Geobasileus uropygialis, and also *Acanthiza pyrrhopygia* are essentially species which have adapted themselves, that is, in the pallid races, to the trying conditions of the Australian desert regions. The mallee eucalypts and certain dwarf acacias are examples among plants of a high degree of specialization in the variety of ways they resist the destructive effects of scorching sun and parching earth. These hardy little birds when critically examined by the biologist may show similar adaptation of structure.

Although this species has much the same range as *G. chrysorrhous*, it yet differs in two important respects. It is not found in the coastal fringe of eastern Australia, nor the extreme south-west, and it is more plentiful in far interior regions.

The fine series of skins in the collections here examined, shows that in this interior and ground-loving species the variation is not at all marked over vast distances. To make many sub-species of slight variations is unwarranted and confusing . These observations show that certain variations are individual (even sexual), not regional, and therefore are not reasonable grounds for sub-species .

The sexes often show variation; the male, besides more crescents on the forehead and longer wing, has lighter under tail coverts than the female. In few species is the gradation of one race into another so noticeable as this.

Skins 2207, 10590, from the interior of N. S. Wales, have a buff tinge throughout the under surface, possibly the result of stain from the red ironstone country they inhabit.

The species is here placed with *Geobasileus* because of habits, wing formula and light colored base of the tail.

GEOBASILEUS ROBUSTIROSTRIS, Milligan.

(Thick-billed Thornbill).

This species was first described by A. W. Milligan, from specimens obtained at Day Dawn, Murchison District, W.A.

For coloured figure, see *Emu*, Vol. XVI., pl. 23. also Mathews, *Birds of Aust.*, Vol. IX., pl. 451, top fig.

Type is in Western Australian Museum, No. 5548, female.

Examination of Skins.—2202 ♂, Lake Way, W.A., crown grey, streaked black; frontal crescents minute; back greyish olive; upper tail coverts and base of tail dark cinnamon; throat whitish; breast grey; flanks light pinkish cinnamon; length 3.7 in.; bill .3 in.; wing 2.0 in.; tail 1.5 in.; tarsus .7 in.

2203 ♀, Lake Way, W.A., like 2202, but shaft streaks on crown fainter, and throat grey like breast.

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*Note—The species is recorded for N.W. Cape, *Nests and Eggs*, North, p. 267.

71 ☿, Yalgoo, W.A., similar to 2203; abdomen and under tail coverts white; tail tipped white, including central feathers; bill and legs black.

* * *

2160 ♂, Moorilyanna Well, Cen. Aus., like 2202, but darker (more olive) on rump; wing 2.1 in.; secondaries edged white.

501 ☿, Moorilyanna Well, C.A., like 2203, but breast faintly tinged buff.

6264 ♂, Moorilyanna Well, C.A. (type *A. mariannae*, S. A. White), slightly darker than 2202.

2159 ☿, Everard Ranges, C.A., like 2160, but flanks darker; wing 2.0 in.

B.1710 ♂, Everard Ranges, C.A., similar to 2160. (Pair lent by S.A. Mus.)

B.1711 ☿, Everard Ranges, C.A., flanks much lighter, similar to 2203.

6265 ☿, Musgrave Ranges, C.A., more olive on back than 2203 and darker on breast and throat.

REMARKS.

This is a far interior species of singular isolation and differs from all other species of *Acanthizinae* in having black shaft stripes to feathers of the crown and white tips to central as well as other tail feathers. It is not a simple pallid form like *G. uropygialis condora* of a species having darker races near the coastal regions. It is a straight-out desert species, as far as known at present, unconnected with any other kind.

Its strongholds appear to be in the vicinity of Lake Way, W.A., and also the centre portion of S.A. It will be noticed (see map *Emu*, XXIII., p. 29) that these regions are well within the 10 inch isohyet, and are both on old land surfaces. There is as yet no record of the species in intervening localities, but in all probability it occurs throughout those almost unknown desert regions, particularly about the 28th parallel of latitude, where similar old continental rock surfaces are to be found.

That a desert species is likely to have any good sub-species is not yet proven. The female has a greyer throat and smaller wing than the male and there is some variation in the tone of the flanks. It should be noted that this species has crescents on the forehead, white with black bases, confined however, to a very small frontal patch. The tail is somewhat rounded more like true *Acanthiza*, but for the reason that the basal portion of the tail is light coloured like the upper tail coverts, I prefer to place the species with *Geobasileus*.

A nestling is described by A. W. Milligan, *Emu*, Vol. III., p. 102.

Referring to Thornbills (these and their kindred pallid races of *G. uropygialis* and *A. pyrrhopygia*) being able to exist a great distance from water, S. A. White remarks that large bodied spiders which constitute the bulk of their food probably supply the necessary amount.

Arctic Skua (*Stercorarius parasiticus*) **in Moreton Bay.**—On May 16, 1925, I saw a pair of these skuas near the pile light in Moreton Bay. They were both examples of the light phase with white underparts and yellowish cheeks. In the *Emu*, Vol. XXI., p. 271, I recorded seeing birds of this species off Cape Moreton in October, and as far as I can discover that is the only previous record of this skua in Queensland waters. It is surprising to meet with them so late in the season.—W. B. ALEXANDER.

Ten Months on the Fitzroy River, North-western Australia.

BY F. LAWSON WHITLOCK, R.A.O.U.

(WITH INTRODUCTION BY A. J. CAMPBELL, C.M.B.O.U., ETC.)

INTRODUCTION.

FAR north-western Australia, until recently, was considered an out-of-the-way corner of our Continent. To-day, by aerial mail, it takes a week only for a letter to reach the Eastern States.

The first systematic collection of birds was made in the Derby district about 1885, by Thomas Henry Bowyer-Bower (son of Capt. Bowyer-Bower, England).

He collected about 700 skins. Unfortunately, 200 were burnt by a bush fire. And, still more unfortunately, Bowyer-Bower was returning the following season to make good his loss, and to obtain additional notes, when he contracted fever, and died at Port Darwin 23rd December, 1886, at the early age of 24. Walter Burton, Wardour St., London, was Bowyer-Bower's taxidermist, and tended him to the last.

Dr. E. P. Ramsay, Australian Museum, Sydney, wrote a series of articles on the Collection in the *Proceedings of the Linnean Society* (N.S.W.), Vols. I and II. (1887-8).

More recently in connection with his great work on *The Birds of Australia*, Mr. Gregory M. Mathews reviewed the collection which Bowyer-Bower's father had donated to the British Museum. Mathews' annotations appeared in the *South Australian Ornithologist*, Vols. II and III. (1916-17), *i.e.*, 30 years after Ramsay's. In the collection was found a specimen of the Long-toed Stint (*Erolia subminuta*), the first recorded taken in Australia, which Ramsay merely marked "121 *totanus*, sp."

In 1886, Mr. E. J. Cairn, collecting on behalf of the Australian Museum, reached a locality about 100 miles inland from Derby, where he was attacked by wild natives and was speared through the arm. Eventually, however, he made a fine collection of bird-skins, nests and eggs, but unaccountably and unfortunately two boxes containing a large portion of the collection were lost in transit to the Museum and were never heard of again.

Ten years later misfortune attended the next exploring expedition—the Calvert to the nor' west, when two of its members, Messrs. C. F. Wells and G. Jones perished from thirst, and a large and valuable collection of specimens was abandoned in the desert. Nevertheless, Mr. G. A. Keartland, ornithologist to the expedition, when camped near the junction of the Fitzroy and Margaret Rivers, collected 167 specimens of about 60 species of birds. Notes on these by Mr.

A. J. North and Keartland's field observations throughout the terrible journey are recorded in the *Trans. Royal Society of South Australia*, Vol. XXII. (1898.)

About the beginning of the century there was something a of rush, ornithologically, for the far north-west. Mr. J. P. Rogers (now residing in Gippsland, Victoria), made a private collection which Mr. Robert Hall wrote up in *The Emu*, Vols. I and II. (1902). A new Warbler (*Gerygone tenebrosa*) was discovered, which, however, Hall described in the *Victorian Naturalist*. Rogers subsequently did excellent collecting work in the north-west for Mathews, and was rewarded by the discovery and the dedication of a unique, red-coloured Mangrove-Bittern (*Butorides rogersi*).

The Lands Department of Western Australia, in 1901, sent out an exploring expedition under Surveyor F. S. Brockman to Kimberley of the far-nor'-west. Forty-three bird-skins (29 species) were collected, including a new rare and large Black Grass-wren, which was named *Amytornis housei* by A. W. Milligan in honour of Dr. House, who acted as naturalist to the party. Mr. J. T. Tunney, of the Western Australian Museum, in a prolonged trip to the Northern Territory (1901 to 1903) visited *en route* the far north-western province. The extensive collection made by Tunney was divided between the Western Australian Museum and the Tring Museum (England), while a few specimens went to the British Museum.

Dr. E. Hartert (of the Tring Museum) critically examined the whole of the material, the results of which appeared in *Novitiates Zoologicæ*, Vol. XII. (1905).

About 1910 Mr. G. F. Hill (now attached to the National Museum, Melbourne) went out for Mr. H. L. White, N.S.W., to the far nor'-west, obtaining a new Owl (*Ninox kimberleyi* Math.) and a new Shrike-tit (*Falcunculus whitei*, Camp.). Hill's conscientious research work and fine photo-plates appear in *The Emu*, Vol. X.

Following Hill (1911-13) there was a Swedish scientific expedition to the region of Derby. " The studies of the birds " were by Rudolph Söderberg. Careful and important details of the work have been published in English, but no new species is described.

Last, and I hope not least, our friend Mr. H. L. White again sent out Mr. F. L. Whitlock, this time to the district of Derby, where he remained nearly a year. Most unfortunately, he struck the severest drought that district had experienced for years. Nevertheless, sixty species were collected. The specimens now augment the " H. L. White Collection " in the National Museum, Melbourne. Many of the specimens are exceedingly valuable because from type localities.

Instead of concluding, perhaps I should have commenced with mentioning the north-west as the type locality of many important species.

As I have previously pointed out* there has been some confusion between " North-west Coast " and Port Essington (N.T.) as type

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**Emu*, Vol. XXI., p. 189.

locality of certain species. Mr. W. B. Alexander, M.A., in his valuable reference, " History of Zoology in Western Australia," settles some points beyond all doubt. The question rests mainly as to where Grey, Bynoe and Dring obtained birds for Gould. Capt. Stokes definitely states in his account of the exploration of King Sound and the Fitzroy River that " several specimens of rare birds were obtained by Messrs. Bynoe and Dring, all of which are now figured by Mr. Gould in his *Birds of Australia*."

As to type localities of the two following there can be no doubt :—

Cracticus argenteus, P.Z.S., 1840, " N.W. coast of Australia (collected by Capt. Grey)," Hanover Bay. The only district Grey visited.

Rhipidura isura, P.Z.S., 1840, " from N.W. coast (collected by Capt. Grey and Mr. Dring)," Hanover Bay. As Grey's specimen is mentioned first and the locality is certain, Dring may have got his in the same locality.

The following, among others, are equally definite, as the particulars are given in Stokes' voyage :—

Petrophassa albipennis, Gould, " Plain by the Fitzroy River."

Colluricincla brunnea, P.Z.S., 1840, " From the N.W. Coast."

Myiagra latirostris, P.Z.S., 1840, " From N.W. Coast, collected by Mr. Dring."

Petrophassa albipennis was described at the same time in P.Z.S., 1840, " From the N.West Coast," and we know from Stokes that it came from the Fitzroy River, therefore it is almost a certainty that the other specimens, described at the same time, came from the same locality, or, at least, were obtained by Dring on the same voyage. It may be also noted that Bynoe must have presented his birds to Gould later, so that in this lot he only had Grey's and Dring's collections from the north-west.

While on the subject of type localities, Dr. Hartert (*Nov. Zool.*, Vol. XII., p. 219) seeks information why certain Australian ornithologists accept *Microeca pallida*, De Vis, as a separate species, as he believes it is the same form as *M. assimilis*, Gould. If the talented Doctor were to give *M. assimilis*, Gould, P.Z.S., 1840, its true type locality, namely, Swan River, W.A., and not Gulf of Carpentaria, Queensland, which is the type locality of *M. pallida*, he may find them separate species. Or, perhaps, there has been some confusion in the localities, because there is a large Kimberley district in North Western Australia, and a minor place, by the same name, on the Gulf of Carpentaria. Whitlock obtained at Derby six specimens of what we believe is *M. pallida* ; therefore, if the diagnoses be correct it is a coincidence that *M. pallida* extends its habitat from Kimberley in the east to Kimberly in the west.

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†Proc. Roy. Soc., W.A., Vol. III., pp. 17-25.

NARRATIVE.

The Fitzroy is one of the largest rivers in Western Australia, and during the somewhat brief rainy season of the Kimberleys, brings down an immense volume of water. Rising well to the north of the great Leopold Ranges, it pursues a semi-circular course of south west to north-west before it falls into King Sound, at the town of Derby. During its journey it receives its important tributary, the Margaret. The two rivers, with their subsidiary tributaries, drain a large area in the east and west Kimberley provinces. The Fitzroy passes through both the Leopold and Oscar Ranges, to the south, amidst much picturesque and rugged scenery. The total course of the river is over five hundred miles. The country about its north-western sources is not very well known on account of want of tracks and general inaccessibility, not to mention aborigines, more or less hostile.

The telegraph line from Derby to Hall's Creek crosses the Fitzroy in a west to east direction, about one hundred and forty miles to the east of the former township, and just below the junction of the Margaret River. This locality is known as the " Crossing," and as, in addition to a postal and telegraph office, there are a store and hotel, I made the Crossing by headquarters during my researches into the avi-fauna of the river and surrounding country. Mr. H. L. White, of Belltrees, N.S.W., again generously defrayed all expenses connected with the trip.

The year 1924 will always be remembered as one of the driest ever experienced in Western Australia. The West Kimberley did not escape the drought, but a record of nearly nine inches of rain for the first three months, despite its being considerably below the average, seems to indicate that the crossing had suffered less from drought than other parts of the north and north-west. In the Kimberleys, the rain falls chiefly during the months from December to March. Winter rains are very infrequent, but the dry period generally breaks with local thunderstorms, sometimes as early as October, but more often in the latter part of November. The rains occasionally extend into April, but as a rule they cease abruptly towards the latter end of March. At the Crossing the mean annual fall is now about twenty inches, but the general opinion seems to be that the country is now passing through a dry cycle, as nine or ten years ago the mean annual averaged as much as twenty four inches. In the year 1914 there was a big flood on the Fitzroy and many head of cattle were drowned, and for a short time the hotel was isolated, the flood waters invading the kitchen and being nearly up to the floor of the main buildings. This flood, as is usually the case, was caused by more heavy rains to the north than due to exceptional local rains. During my stay on the Fitzroy there was no flood, but for some weeks in February, 1925, the river was a banker, and at the Crossing was fully a quarter of a mile wide. I estimated the highest level reached by the waters represented a rise of nearly forty feet above the low level of the river during the preceding December.

The Fitzroy being well within the tropics, the temperature is naturally high, and as rains fall during the hottest months of the year, the climate at that period is very enervating, and not healthy. A species of malarial fever is prevalent, but curiously enough sickness from this cause is more in evidence during the dry months of the year, when the cooler east winds blow. During my visit an epedemic of " flu " occurred, though not a severe type. I was fortunate enough to escape with only brief attacks of either " flu " or fever, from which I quickly recovered.

Soon after the fall of a general rain, the country is magically changed from an arid, sunburnt waste into a sea of green, the growth of grass and herbage being phenomenal. In March, when the grass has reached its maximum growth and the seed heads have formed, it is difficult even when riding on a horse to see more than a few yards ahead in areas covered with the so-called wheat, or spear-grass (*Andropogon affinis*) and the loose seed-heads penetrates one's clothing, rendering progress difficult and irritating. Hunting birds or their nests under such conditions is rather a hopeless task and requires extreme patience and perseverance. Fortunately, only a few species such as *Mirafra*, *Cisticola*, and *Turnix*, frequent such country.

The Fitzroy district generally is devoted to pastoral purposes. There are some large sheep stations between the Crossing and Derby but cattle stations predominate. During the journey, by coach or motor, between these two localities one passes through 57 gates, in a distance of 210 miles. To accommodate the stations the mail route follows the curve of the river, but the actual distance of the Crossing from the true coast-line is about 180 miles, Derby being at the head of a deep sound.

I left Fremantle 14th May, 1924, and arrived at Derby about a week later, nothing of note being observed in the sea-bird line during the voyage. Having a few days to spare before the mail-coach started I put in my time amongst such of the mangroves as were accessible at low tide. I found bird-life not very numerous, and such species as were present, very silent. I secured two species of warblers (*Gerygone*) and one *Rhipidura*. Others noted were *Pachycephala*, *Glyciphila*, *Artamus*, *Geophelia*, etc., with odd individuals of the Jabiru and Native Companion, or Brolga.

Black Cockatoos in small parties occasionally passed overhead, but Waders were very scarce and I only saw a few Curlews (*Numenius*).

The town of Derby is built on a narrow peninsula, salt marshes extending on either side. Many fine boab or baobab (*Adansonia*) trees are growing in the township. These remarkable trees are intermixed with eucalypts and bauhinia trees, with an undergrowth of bushes and shrubs. I found the salt marshes very bare, perhaps owing to the dry conditions prevailing, the previous summer rains around Derby having been a complete failure. Bird-life was, however, fairly plentiful, the most conspicuous species being the brilliantly plumaged Crimson-winged Lory (*Ptistes erythorpterus*). This gaudy bird was flying about the streets in small flocks, frequently perching in the bauhinia trees, on the seeds of which it was feeding. The unattractive Little Leatherhead (*Philemon*) was equally common, its raucous notes being heard eveywhere. Babblers (*Pomatostomus rubecula*) were present in small parties, and their empty nests were to be seen in such boab trees as had shed their leaves. Whistlers (*Pachycephala falcata*) were common and occasionally were heard singing. Honey-eaters (*Meliphaga*) of several species were plentiful. On the verge of the salt marshes parties of Wrens, afterwards identified as *Malurus cruentatus*, were noted, and in the eucalypts a dainty little Warbler (*Gerygone olivacea*) and numerous Pardalotes (*Pardalotus uropygialis*) were observed. A rare bird, seldom seen during the whole trip, was the common Pipit (*Anthus australis*). A few of these were observed on the salt-marshes only.

The mail-coach left Derby on June 1st. For the first twenty miles of the journey the track skirted the salt-marshes, and bird-life was scarce. We made a brief halt at Nobby's Well, fifteen miles out, to water our six mules. Beyond a few Finches (*Staganopleura annulosa*) there were no birds at the well, and only a few waders (unidentified) on the adjacent marshes. Our halt for the night was at Yeda station. We had cleared the salt-marshes and had entered a dwarf forest country, where I observed a few pairs of the gorgeous little Lorikeet (*Trichoglossus rubritorquis*). The following day we travelled through more open country, known as Pindan, on account of the patches of a species of acacia called pindan (*Acacia tumida*). This shrub grows to an average height of from four to six feet, amidst other bushes and stunted trees, clothing the surrounding grassy plains. It is eaten by stock when other feed is scarce. In this open country Kites (*Milvus migrans*) were fairly common. Amongst the smaller birds the bee-eater (*Merops ornatus*) was conspicuous. Pairs of the Black-tailed Tree-creepers (*Climacteris melanura*) were noted on the trunks and branches of the bauhinia trees. Wood-swallows (*Artamus melanops*) were common, and pairs of Bush-larks (*Mirafra horsfieldi*) became frequent. Other species were noted, but not identified with certainty. We camped for the night at Lower Liveringa Station.

Our next stage was to Mount Anderson. The country passed through was hardly so level as during previous stages. Near Mt. Anderson the first Little Wood-swallows (*Artamus minor*) were observed, and Black-tailed Tree-creepers were more common, especially amongst the Coolibahs (*Eucalyptus microthoeca and E. Spenceriana*) growing around the billabongs.

Next day we travelled to Upper Liveringa Station, passing close to the Grant Ranges, the only elevations worthy of the name of ranges between Derby and Fitzroy Crossing. The level plain at the foot of the ranges was much cut up by creeks which joined the Fitzroy a few miles to the south. Many Galahs (*Cacatua roseicapilla*) were seen during the days and occasional pairs of Goshawks (*Astur fasciata*) were noted, with the smaller birds as observed during previous stages. The notes of *Melithreptus laetior* (Golden-backed Honey-eater), were heard at our luncheon camp. Native Companions were seen at intervals along the track, and a flock of about twenty Pelicans (*P conspicillatus*) were swimming on a permanent pool. Leaving Upper Liveringa the following morning, we reached a roadside camp near a stockyard about 4 p.m. A large flock of Bare-eyed Cockatoos (*Cacatua sanguinea*) was observed during the day, but not much else of special note. Boab trees were now becoming infrequent. We started early the following morning, our destination being Moonkanvale Sheep Station. The country was now very level, and in less fertile areas clothed with spinifex (*Triodia pungens* and *T. cunninghami*) in the place of grass. Trees of any description were scarce, and the general appearance of the country was uninteresting in the extreme . It was difficult to imagine one was travelling in the tropics. Only occasional billabongs surrounded by eucalypts broke the monotony, and it was a real treat to note the lovely pale blue water lilies (*Nymphæa stellata*) growing in the water and to inhale their delicate perfume. Despite the uninteresting appearance of the country it was not devoid of bird-life. Pairs of *Mirafra* (Bush-larks) were plentiful. Small flocks of finches (*Stictoptera*) were frequent, and in the *Triodia* parties of *Malurus cruentatus*, always in brown plumage, were observed. Just before we left camp in the early morning a Goshawk swooped at what looked like a flock of Grass-parrots ; but they were not near enough to make identification at all certain. One or two Miners (*Myzantha lutea*) were observed near a lily pool. The first Kestrels (*Cerchneis*) and Little Eagles (*Hieraëtus morphnoides*) were noted.

The following day, June 6th, we travelled to Quambun Sheep Station. During the journey many Galahs were seen, and Native Companions were stalking about the home paddock, quite close to the homestead. June 7th saw the and of the coach journey. We passed Jubilee Station in good time in the afternoon, where there was a good view of a fine reach of water on the Forrest River, the latter river in reality being an arm of the Fitzroy. A Darter (*Anhinga*) was seen swimming on a musty billabong. We arrived at Fitzroy Crossing about 5 p.m., having been seven days on the road. I was pleased to see a few pairs of Crimson Finches (*Neochmia phaeton*) flitting in the garden and buildings of the hotel. It was not encouraging to learn that the season so far in West Kimberley was regarded as one of the worst experienced for a number of years. However, the only thing to do was to make the best of it.

Investigations during the next few days revealed a fine stretch of river forest, comprising a good variety of timber, with an undergrowth of fresh-water mangroves (*Tristania*) and also a fringe along the water's edge of pandanus palms (*Pandanus aquaticus*). All herbage, however, was in a burnt-up and withered state.

After working this country for a short time, I moved out to the Oscar Ranges, some miles to the north of the Crossing. These ranges are composed of limestone, and though rising to no great elevation are weathered into very picturesque shapes, very difficult to traverse, except where nature has found a gorge through them. I pitched my camp near Geikie Gorge, where the Fitzroy passes through, forming very extensive and deep permanent pools of water, tenanted by crocodiles and even sharks. Though very low, a stream of water was still running in the deepest channel of the river, and despite the absence of rain, continued to flow till the end of the year, the source of supply being springs in the ranges. I left this camp July 20th, returning to headquarters on the same date. My next camp was further down the river, at what is known as Gogo Crossing. During my stay there, the cadjuput trees began to flower. Small Honeyeaters became numerous and I had my first encounter with the huge bats or flying foxes, which came to feed on the blossoms near my camp and made the night hideous with their shrieking and querulous cries.

On Sept. 2nd, at the kind invitation of Mr. Wm. Richardson, I moved out to Leopold Downs Station, about forty miles to the north-west of the Crossing, and within about twenty miles of the great Leopold Ranges. I stayed some time at Leopold Downs Station, with an out-camp at Derri Spring, an isolated water hole some miles to the east of the homestead. The country near Leopold Downs was much diversified by huge out-crops of limestone. Unfortunately, surface water was very scarce and many birds must have departed to more favoured regions.

My next camp was on Brooking Creek, a small creek of fresh water emerging from the Oscar Ranges through a very precipitous and picturesque gorge. I was told that twenty years ago Brooking Creek ran the year round. This is not the case now. In 1924 its waters failed to reach the Fitzroy for quite four months. However, there are pools along its course which have never been known to go dry, and these pools are fringed by luxuriant masses of *Pandanus aquaticus*, with groups of *Pandanus odoratissimus* on their banks.

On October 20 I moved to another camp near the actual Crossing of the Fitzroy, which is a short distance below the confluence of the Margaret River. Ten days later I was back on Brooking Creek in order to examine further the gorge and adjacent ranges. I stayed at this second camp on the creek for three weeks, and then had to leave as the water near my pitch was rapidly drying up and becoming unfit for use. The weather too, showed signs of breaking. Dry thunderstorms had already occurred, with strong hot winds and dense clouds of red dust. I returned to the Crossing, and on Nov. 23rd the first local rains of the season fell, sixty-three points being registered. Having had several touches of Fitzroy fever, I was warned not to camp out during the rains. Conditions being very bad without special shelter, and mosquitoes much in evidence, I decided therefore to remain at the hotel, as a general break-up of the dry weather was anticipated every day. At times things looked very promising, but unfortunately it was not till January 10th that there was sufficient rain to make the river run, though grass and herbage had made a start to grow. This water came from the north, and it was another fortnight before good general rain set in. Then prolonged dry conditions naturally had an adverse effect on the hot weather breeding season of local birds, and as the rains ceased abruptly

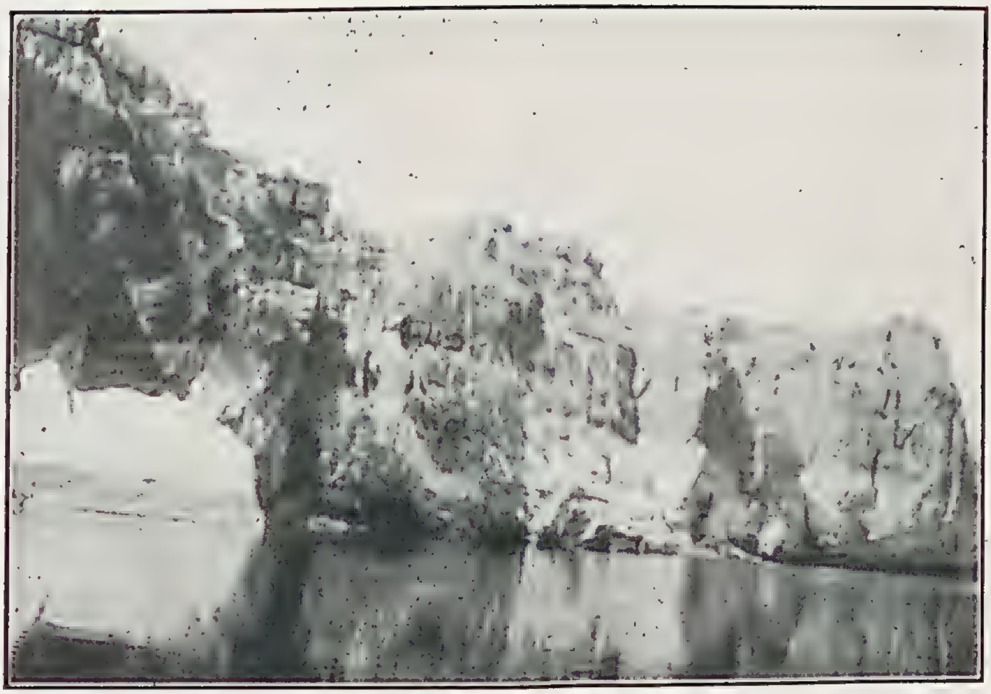

FIG. 1.
CROCODILE POOL, GEIKIE GORGE, FITZROY RIVER.

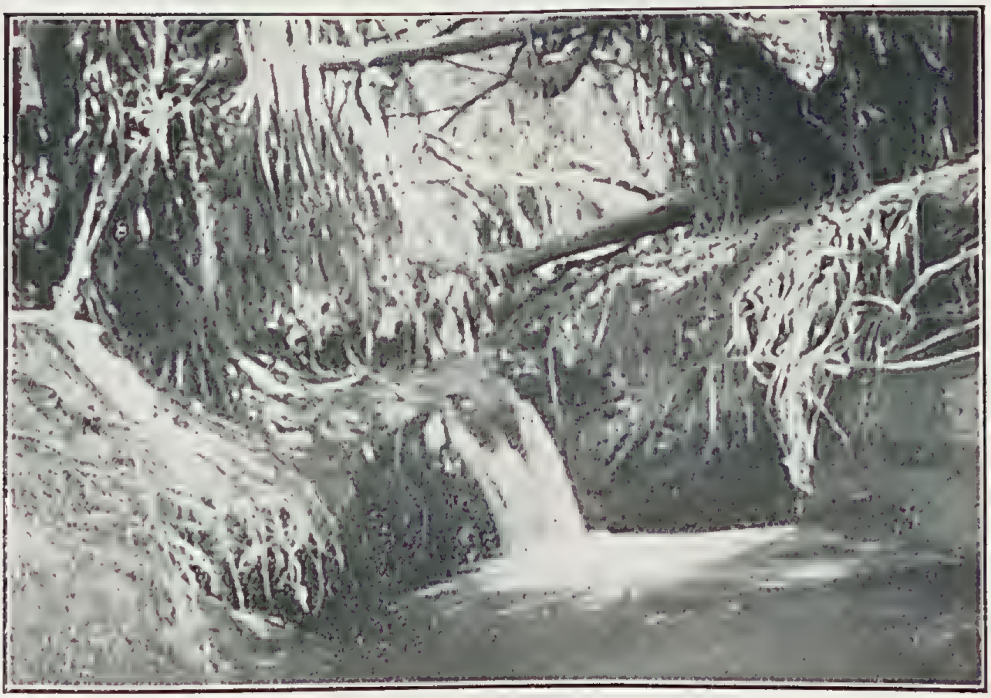

FIG. 2.
HAUNT OF BLACK BITTERN (*Dupetor flavicollis*), BROOKING CREEK.

Photos. by F. L. Whitlock.

in the middle of March, the nesting period for 1924 and 1925 was a very brief one. To add to my difficulties, when the grass and herbage were flourishing most, all low-lying country became very boggy and the river forest was practically submerged. As an illustration of the difficulty of travel in the Kimberleys during the rainy season, a light two-wheeled vehicle, with a few poles and drawn by plenty of donkeys, took six weeks to travel from Derby to the Crossing, keeping on the beaten track all the time. The monthly pack-mail always takes ten days and occasionally more to do the same journey.

The total rainfall for 1924 was only 940 points, against an average of over 2,000. In 1925, January 15th to March 15th, during which brief period all the rainfall, 1,469 points were registered. On only four days did the fall exceed an inch. The maximum was 135 points. The greater volume of water that floods the Fitzroy comes from further north, or down its big tributary, the Margaret. The Fitzroy does not bear a good reputation for health, and during my stay in the neighbourhood sickness was prevalent, in which I shared to some extent.

On my return journey, I left the Crossing for Derby, April 10th, 1925, and after a rough journey, due to bad roads—more correctly described as tracks—arrived at the latter township, amidst swarms of mosquitoes, about 9.30 on the evening of 12th. I caught the S.S. " Gascoyne " the following day and reached Fremantle a week later.

The following birds were met with during the trip, but owing to adverse conditions the breeding seasons were both failures. Birds breed both in the dry, or cool seasons, and also in the wet, but there is a very distinct interval between the two periods.

LIST OF BIRDS.

[NOTE.—Nomenclature, with few exceptions in accordance with the proposed R.A.O.U. Check-list, 2nd edition. Of species marked with cross (or dagger) specimens were obtained.]

Dromaius novæ-hollandiæ (Emu). Only occasionally seen in the plain country. I heard of eggs being found, and young seen in July and August. A three-parts grown bird was stalking about the home paddock, with full liberty, at Leopold Downs Station. It usually returned to the homestead at night.

Turnix (*sp.*) (Quail). Quail were seen twice in long grass near Brooking Springs Station early in March. They were of a small species of the size and appearance on the wing of *T. velox.*

Geopelia humeralis (Bar-shouldered Dove). Common in the fresh water mangroves (*Tristania*). I found nests with eggs and young, both before and after the river forest was submerged. It was not confined to the neighbourhood of water.

Geopelia placida (Peaceful Dove). This species occurred in the same localities as the foregoing. One or two nests were in inaccessible situations, but it bred very sparingly in comparison with its abundance. Never seen away from water.

Ocyphaps lophotes (Crested Pigeon Bronzewing). Seen at all my camps, but I observed no nests. One of my camps was sheltered by a tree called a wild plum It was bearing a green fruit. The parrots snapped these off to get at the kernel, on which they fed. The crested Bronzewings swallowed the fragments that fell during the process.

Fulica atra (Coot). As the drought became more severe a number of Coots visited the large pools on the Fitzroy, but as soon as the river ran they cleared out. I saw no signs of their breeding on any neighbouring billabongs.

Podiceps ruficollis (Little Grebe) A pair or two seen on pools in the Fitzroy. On my return to Derby a stockman from Yeda Station, 25 miles to the east, told me a number had bred on a pool in that locality. Rains had been more copious and had extended over a greater period in the neighbourhood. Eggs were noted in February and March.

Erythrogonys cintcus (Red-kneed Dotterel). One pair seen during low water on the main river (Novr. 25th).

†*Charadrius veredus* (Oriental Dotterel). A single specimen seen at Leopold Downs Station.

Charadrius melanops (Black-fronted Dotterel). Present in many places. Two young birds seen on a mud-bank in the main river later in the year.

Himantopus leucocephalus(White-headed Stilt). A fair number during low water on the shallow pools of the Fitzroy. They were reported to breed during favourable seasons at a billabong a few miles to the east of the Crossing. All left the river and were not seen again when the waters began to run.

Recurvirostra novæ-hollandiæ (Red-necked Avocet). One pair seen, amongst the Whitetheaded Stilts.

Glottis (*Tringa*) *nebularius* (Greenshank). A few pairs seen at the big shallow pools on the Fitzroy.

Numenius cyanopus (Eastern Curlew). One or two at a large pool on the Fitzroy (Dec. 22nd). madagascariensis

Pisobia acuminata (Sharp-tailed Stint). A pair or two on mud banks in the main river.

Actitis hypoleucos (Common Sandpiper). Seen once at a large pool near the Crossing (Feb. 27th).

Glareola maldivarum ? (Pratincole). A small flock of Pratincoles flying high and going north seen near the Crossing just before the rains.

Burhinus magnirostris (Southern Stone-plover). One heard calling at night once or twice near Leopold Downs Station. curl

Eupodotis australis (Australian Bustard). Well distributed. Not infrequently brought into the hotel and stations by aborigines. I met one native carrying a pair he had killed near Leopold Downs. The species bred during the rains. Constable Banly picked up a fresh egg north of the Oscar Ranges, 18th January, and I got a pair in the Pindan country a fortnight or more later. These eggs were fresh. I shot a three-parts grown bird in Septr. for food at Derri Spring.

Megatornis rubicunda (Brolga). Fairly common; chiefly seen on the wide grassy plains. Also often seen wading around the margins of shallow pools. Many were seen dead at and around bores, towards the end of the drought. Even as far east as Sturt Creek in the East Kimberley the same fate overtook a good many. A pair of eggs taken on Bohemia Downs, sixty miles south of the Crossing, were given to me. These eggs were laid in February.

Xenorhynchus asiaticus (Jabiru). Rather rare. One or two seen near the Crossing.

Threskiornis spinicollis (Straw-necked Ibis). Frequently seen, chiefly in shallow water on the Fitzroy.

Platalea regia (Royal Spoonbill). Small parties seen feeding in pools when the river was low. At times when watching aquatic birds at the big shallow pools, I noticed what appeared to be a mutual understanding, or something akin to this, between the various species. In feeding, the Spoonbills walked in front and with their large spatulate bills stirred up the various forms of life in the water. Then followed the Ibises, to be in turn followed by the White-headed Stilts. If the water was not too deep, the rear was brought up by Sandpipers, or Black-fronted Dotterels.

Platalea flavipes (Yellow-billed Spoonbill). One or two seen in company with the other species.

Egretta garzetta (Little Egret). Occasionally seen either perched in trees, or feeding in shallow water. Another and larger white Egret was seen, with a light coloured bill, but I could not get near enough to identify it with certainty.

Notophoyx pacifica (White-necked Heron). Fairly common. This species bred in small colonies at favoured billabongs during the rains.

Nycticorax caledonicus (Nankeen Night-Heron). Colonies existed at Geikie Gorge, Brooking Creek, and pairs were frequently disturbed from the large wild fig (*Ficus globerosa*) trees along the main river. This was the commonest Heron in the district.

Dupetor flavicollis (Black Bittern). Occasionally seen in the river forest, and also near Brooking Gorge.

Anseranas semipalmata (Pied Goose). Apparently scarce this season. In the West Kimberley there are certain favoured billabongs with surrounding marshy country where this species and other water fowl breed in numbers. One such breeding place was near Old Leopold Station. But in place of dozens of Geese on the adjacent pools, only one pair were to be seen in February. Most of the water fowl breed during the rains.

Chenonetta jubata (Maned Goose). A few seen though the species is well known on the Fitzroy, where it follows its practice of breeding in boles of trees.

Dendrocygna javanica (Whistling Duck). I handled one or two secured by local sportsmen, Nov. 26th., just before the rains set in. They were too much damaged for preservation.

†*Nettapus pulchellus* (Green Pigmy Goose). A pair or two on Brooking Creek and also on pools in the Fitzroy. Just before I left the Crossing an aborigine brought in an incubated clutch of small eggs that appear to belong to this species. I was away at the time, and had no opportunity of getting at the native name, which would have led to conclusive evidence as to their identity.

Anas superciliosa (Black Duck). Fairly common all over the district. Near the Crossing is a large Billabong called " Koori." In a normal season, after nesting is over, this pool fairly swarms with Ducks of various species. A photograph of a large flock taken by Constable Rae was given me.

Querquedula gibberifrons (Grey Teal). The commonest Duck in the West Kimberleys. It frequently figured on the dinner table at the Crossing Hotel.

Malacorhynchus membranaceus (Pink-eared Duck). Seen on Brooking Creek and on the Fitzroy, but rather rare.

Stictonetta nævosa (Freckled Duck). Constable Walters sent me a much-battered specimen on Christmas Day. It had been killed by a local native. Mr. J. Lahey, of Fossil Downs Station, reported seeing three much about the same time in another locality. They were swimming on a pool where he camped for the night.

Hardhead

Nyroca australis (Australian White-eyed Duck). I examined one or two battered specimens brought in by sportsmen, Dec. 24th and during the rains I found a nest by flushing the female therefrom. The nest was under a clump of spinifex, and appeared to have been hollowed out by the owner. It contained nine eggs—one outside the nest slightly damaged—but no down. The spinifex was growing on a stony hill side.

**Phalacrocorax varius* (Pied Cormorant). Frequently seen on the larger pools in the Fitzroy.

Anhinga novæ-hollandiæ (Australian Darter). An occasional bird seen perched on a tree or swimming in a pool.

Pelecanus conspicillatus (Australian Pelican). Small parties often seen either on billabongs or on the main river.

Circus assimilis (Spotted Harrier). Rare, but identified once or twice.

Astur fasciatus (*cruentus*?) (Australian Goshawk). I never got a chance to procure a specimen, so cannot say if the western form extends to the Kimberleys. I occasionally saw a Goshawk in the more open river forest, or on the plain, where scattered timber was growing.

†*Accipiter cirrocephalus* (Collared Sparrow-hawk). This was the commonest of the Hawks on the Fitzroy. At Brooking Creek I seldom failed to see one or two come down to drink each day. At Derri Spring, a female snatched up a Painted Finch and carried it off, within a few feet of where I was sitting. I picked up the remains of two in the river forest below the Crossing. What had killed them I could not make out.

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*This species rarely occur far inland. Probably the species seen by Mr Whitlock was the Little Pied Cormorant (*Microcarbo melanoleucus*..—EDITOR.

Uroaetus audax (Wedge-tailed Eagle). Not common. A good many have been poisoned by seizing baits laid down for dingoes. This has thinned out their numbers considerably.

Hieraetus morphnoides (Australian Little Eagle). A few about Brooking Creek, but on the main river its place was taken by the next species. Seen also on the plains. I saw one young bird of the year with its parents in October.

Haliaetus sphenurus (Whistling Eagle). The commonest of the large birds of prey, excepting the Black Kite. Pairs were breeding near the Crossing, but the nests were inaccessible. It bred during the cool weather.

Milvus migrans (Black Kite). Common. Usually seen about homesteads. It bred sparingly in the cool weather of 1924. I obtained two eggs from a nest built on a clump of mistletoe parasites on *Eucalyptus papuensis* on Aug. 29th. The following day I saw a flock of 23 Kites with two smaller fork-tailed Hawks flying overhead. The flight of the latter had a different character.

Falco subniger (Black Falcon). I had an excellent view of a single bird in a small gum tree near Geikie Gorge. It presently flew down and for a short time fed on a dead kangaroo.

Falco longipennis (Little Falcon). One clearly identified sitting near a nest at Brooking Springs. It had no mate apparently, and the nest did not appear to be tenanted. It had probably been occupied during the cool weather. This was in March.

Ieracidea berigora (Brown Hawk). Distinctly rare. Only one pair identified with any certainty.

Cerchneis cenchroides (Nankeen Kestrel). Rather rare. A pair or two seen amongst the rocky Oscar Ranges, and during the journey to the Crossing.

†*Baza subscristata* (Crested Hawk). When I was watching a playground of the Great Bower-bird, a large Hawk flew into a fig tree under which I was sitting. It struck me at once as being similar to an unidentified Hawk seen on several occasions the previous year in Central Australia. I shot it. It proved to be of the present species, and is, I believe, a new record for this State. I feel sure it and the Central Australian bird are of the same species. I think I saw the mate of this bird later, but could not get near it.

Pandion haliaetus (Osprey). I was surprised to see a pair of Ospreys on a large pool at Geikie Gorge. I watched one of them plunge into the water and secure a fish about eight inches long. I have never previously, in the west, seen this species so far inland. Boobook

Ninox boobook ocellata (Marbled Owl). One seen in the mangroves not far from the crossing. It was being mobbed by Honey-eaters. I only got a brief glance at it, but think it was the northern form ,*N. ocellata.*

†*Ninox connivens occidentalis* (Western Winking Owl). This was the real representative of the owl family on the Fitzroy. It was not at all common and lived in isolated pairs. Each pair seemed to live in its own district. I had fleeting glimpses of them at twilight, they but were difficult to distinguish as they seemed to hunt just on the outside of the river forest, in which they roosted in the daytime. Once or twice I noticed an odd bird or a pair perched in a gum tree or in a shady leichhardt tree (*Sarcocephalus*), or again in a native chestnut (*Terminalia*). Heard at close quarters the call note resembled the syllables "whoop wope," uttered rather smartly, and with a sharper sound than the call note of the Boobook Owl. Mr. Wells, of Brooking Springs Station, had a pair of young ones in captivity which were afterwards liberated. The only evidence I had of this species breeding during 1924-1925 season, was that of an Owl's egg picked up at the foot of a tree during the rains. I saw no young birds.

†*Trichoglossus rubritorquis* (Red-collared Lorikeet). This gaudy plumaged Lorikeet was occasionally seen in pairs feeding on the nectar found in gum flowers, or cadjuput and mistletoe blossoms. It was by no means common, and though I was anxious to secure eggs, I failed to find a nesting pair.

†*Psitteuteles versicolor* (Varied Lorikeet). This was the common Lorikeet in the West Kimberley. It was to be seen in all classes of country, but naturally was more frequent where timber was plentiful. Owing to the unfavourable season the flocks did not appear to break up into pairs. The hotel garden was surrounded by six foot netting, and more than once individuals of this species collided with the fence, and for the time being stunned themselves. When

drinking, the Lorikeet is fond of perching on a drooping branch, down which it climbs until it reaches the water and satisfies its thirst.

†*Aprosmictus erythropterus* (Red-wing Parrot). This species was found whereever there was timber. There was even a small flock frequenting the bauhinias in the main street of Derby. It is a fearless species and soon becomes accustomed to the presence of man. At one of my camps pairs fed on the fruit of the "wild plum," just above my head. A few pairs bred during the rains, and I got three eggs from a gum tree near the Crossing. The native name is "Gilling Gidgeri." Princess Parrots were reported from Bohemia Downs Station. They were said to have been driven in by the drought from the so-called "desert country" to the south east. Red-tailed

Calyptorhynchus banksi macrorhynchus (Great-billed Black Cockatoo). Small flocks of this Cockatoo were occasionally seen, but rarely consisting of more than a half dozen birds. As far as I could observe, no pairs bred.

Kakatoe galerita (White Cockatoo). Odd pairs found in the river forest. This is the first time I have met with the sulphur-crested Cockatoo in the west Nearly twenty years ago I was collecting on the de Grey River, a little further south, but saw nothing of the species there.

Kakatoe leadbeateri (?) (Pink Cockatoo). Locally known as the Desert Cockatoo. Pairs were reported near Bohemia Downs and also on Gee Gully Creek. Both these localities adjoin the so-called desert country, which is simply country with insufficient surface water or natural springs to adapt it for pastoral purposes. I did not see the bird.

Kakatoe roseicapilla (Rose-breasted Cockatoo, or Galah). Certainly the commonest of the Cockatoos in the West Kimberley. Flocks were seen every day in all parts. At Derri Spring numbers came to drink. I saw one or two pairs frequenting particular trees, but though I watched for some time, never saw the female enter a nest hole.

Kakatoe sanguinea (Little Corella). Flocks seen flying over, near Derby, and occasionally further inland. Uncommon on the Fitzroy.

Cockarrel

Leptolophus hollandicus (Cockatoo-parrot) An occasional pair seen. Some years they are more plentiful. Budgerygah.

Melopsittacus undulatus (Shell Parrot). Small flocks seen from time to time, but not really common.

Aegotheles cristata (Owlet Nightjar). This species was recognised by its call at night.

E. Broad-billed Rolle

†*Eurystomus orientalis* (Dollar-bird). A few came to Brooking Creek and the Fitzroy just before the rains set in. They lived in pairs, and were usually seen perched on the highest limb of a dead tree. They made no attempt to breed as far as I could see. I saw the first on Oct. 23rd.

Halcyon pyrrhopygius obscurus (Red-backed Kingfisher). A rare bird in the West Kimberley. Only one or two seen or heard calling.

Blue-winged

Dacelo leachii cervina (Fawn breasted-Kookaburra). Pairs at all large pools. During the rains a pair nested near jubilee Station on the Forrest River. The eggs were brought to the homestead by natives.

†*Halcyon sanctus* (Sacred Kingfisher). A few resident pairs, but about October the species became much more plentiful.

[illegible]

Alcyone azurea pulchra (Purple Kingfisher). A pair seen near the Crossing and another pair near Brooking Gorge. I was anxious to secure a specimen of this lovely little Kingfisher, which was new to me. I shot one on Brooking Creek, but could not retrieve it owing to the tenacious and deep mud at the bottom of the pool. In attempting to secure this specimen, I slipped down the steep bank of the creek on to the top of a small crocodile, but was again beaten by the mud. I hurried back to my camp for a line and piece of soft wood to throw over the floating body. When I returned all traces of it had disappeared. The brilliant feathers of the mantle of the Fitzroy birds seemed to be of a violet colour rather than blue.

Merops ornatus (Rainbow bird). Resident on the Fitzroy, but I frequently saw small flocks flying from tree to tree as though on migration. I saw a single young bird being fed by its parents late in the year. This is the only evidence seen of its breeding during 1924-1925.

Eurostopodus guttatus (Spotted Nightjar). One seen at Brooking Creek, and a heap of feathers found, recording the death of another. The peculiar notes heard occasionally at night.

Hirundapus caudacutus (Spine-tailed Swift). A small party flying over a pool on the Fitzroy just before the rains (Dec. 1st). They kept well out of shot.

Cuculus pallidus (Pallid Cuckoo). One or two seen or heard. The first heard calling Dec. 4th.

variol

†*Cacomantis pyrrhophanus* (Square-tailed Cuckoo). This species arrived just before the rains set in (Nov. 22nd). I saw two immature birds in March, so that some, at least, bred. An individual shot in Novr. had the tail feathers only half-grown.

†*Mesocalius osculans* (Black-eared Cuckoo). At my first camp near the Oscar Ranges this species were seen every day, in a stretch of fine river forest. I think at that time (June-July) they were in their winter quarters, for they were not observed later, having probably migrated south. They were not calling

Centropus phasianinus (Pheasant Coucal). Rather rare. A few seen on the Fitzroy, and a pair near the mouth of Brooking Gorge. I surprised one of these in the open. It hopped rapidly towards a clump of pandanus, into which it plunged headlong . On the ground it looked like a huge *Amytornis*. I did not hear the curious notes. Hors

†*Chalcites basalis* (Narrow-billed Bronze Cuckoo). One or two seen or heard calling.

Scythrops novæ-hollandiæ (Channel-bill Cuckoo). A party of about ten haunted the entrance of Brooking Gorge for a few days in the early part of Novr. (3rd). No others seen.

Eudynamis orientalis (Koel). Locally known as the " Storm-bird." Its loud notes usually heard before rain. The first individuals arived about middle of Oct. (12th). I saw nothing in their behaviour to suggest they were breeding.

Hylochelidon ariel (Fairy Martin). A few seen near the river . No colonies of old nests observed, but they are said to breed in the district of the Oscar Ranges.

†*Microeca fascinans pallida* (Pallid Flycatcher). A few seen at Derby when I arrived there, and others seen by the Fitzroy, but apparently they did not remain to breed, probably being in their winter quarters.

**Petroica goodenovii* (Red-capped Robin). A rare bird in West Kimberley. One or two seen, but in immature plumage.

†*Smicrornis flavescens* (Yellow Weebill). Rather rare and very local. Usually found amongst thickets of sapling eucalypts. I searched in vain in such localities for a nest.

†*Gerygone Larvigaster* (Buff-breasted Warbler). A specimen secured in the mangroves at Derby.

†*Gerygone tenebrosa* (Dusky Warbler). A few seen in the mangroves at Derby. They were very quiet and difficult to detect in the dense foliage. Another pair met with in a rocky gorge of the Oscar Ranges. They were flitting about some shady bushes.

†*Gerygone olivacea* (White-throated Warbler). This delicate little species seen both in Derby and in the river forest by the Fitzroy. Some were calling, but I found no nests.

†*Rhipidura setosa isura* (Northern Fantail).Very local, but pairs seen along the Fitzroy in the river forest. A nest found Jan. 12th, 1925, containing three eggs. It was a very small structure attached to some dead and dropping branches of a climbing vine. Willie Wagtail.

Rhipidura leucophrys (Black-and-white Fantail). These familiar birds seem able to exist under all Australian conditions. Pairs were seen throughout the trip. A nest with three eggs found in the fresh-water mangroves Jan. 31st. Another pair hatched their young in a eucalypt in front of the hotel verandah.

†*Rhipidura flabellifera preissi* (Western Fantail). A single example obtained near the Crossing.

†*Rhipidura flabillifera phasiana* (Pheasant Fantail).* An example shot amongst the mangroves at Derby.

**Emu*, Vol. X., pl, c.

†*Seisura inquieta nana* (Little Restless Flycatcher). A few in the heavy river forest, but I saw no signs of their breeding. Leaden

†*Myiagra rubecula concinna* (Blue Flycatcher). Haunting the most luxuriant river forest and difficult to detect in the dense foliage. Not seen away from water.

Graucalus novæ hollandiæ (Black-faced Cuckoo-shrike). Generally distributed in the West Kimberley wherever timber was growing. I noticed one or two nests in the usual difficult situations. This species commenced breeding with the first rains.

†*Lalage tricolor* (White-shouldered Triller). Fairly common and resident. Not attaining full breeding plumage until late in the year. It nested very sparingly. superciliosa

†*Poecilodryas cerviniventris* (Buff-sided Robin). This was one of the most attractive inhabitants of the river forest, to which it seemed to be exclusively confined. It soon attracted my attention by its loud, clear, and sweet notes—though it can hardly be called a singer. It nearly always kept low down and favoured the thickets of fresh water mangroves. I always found it in pairs, and as both sexes call, and their plumage is very similar, it was only by closely watching that one could distinguish the male. Moulting had hardly been completed in June, so that it is a hot-weather (rainy season) breeding species. Despite a close search, it was not until 19th March and after the high water had subsided that I found a nest. The mangroves for weeks having been inaccessible, not only on account of the high water, but also because of a thick stratum of slippery tenacious mud, which rendered walking not only most uncomfortable, but absolutely difficult. The river forest on the Fitzroy grows in numerous old channels with steep sides, and I found to my cost how easy it was to slide from top to bottom, where it was the usual thing to land on one's back, thickly coated with mud. During the rains the Fitzroy is a turbid stream, bringing down immense quantities of silt, due to the caving in of its deep alluvial banks, whole strips of which, tons in weight, fall into the stream with a noise like distant thunder. Trees not infrequently go with the bank they are growing upon. Portions of the river are full of snags.

Probably in a normal season birds like the present species wait until things revert to an ordinary state before breeding. The only nest I found was a poor, flimsy affair—cup shaped, and placed in a small fork of a fresh-water mangrove at a height of about eight feet. I could see the one egg from below. Unfortunately, I had unexpectedly to shift camp the same day. When I returned the nest was empty. Either a young bird had been hatched and flown away or the nest had been robbed by natives who had been cutting bushes close at hand. I climbed up until I could look down at the nest and egg, both of which appeared to resemble those of the Northern Whistler (*Pachycephala*) but the nest was not so substantial. I saw no young birds later on.

Pomatostomus rubeculus (Red-breasted Babbler). Moderately common. No signs of nesting observed during my stay on the Fitzroy, but plenty of old nests observed in the branches of boab trees that had shed their leaves, both near Derby and at Leopold Downs.

†*Cinclorhamphus mathewsi* (Rufous Song-lark). A few pairs arrived with the rains, and the males sang, though not so vigorously as is their wont. A pair I watched near the hotel attempted to nest in the long grass, I think, but were eventually driven away by stock.

Eremiornis carteri (Spinifex bird). One pair seen in *Triodia* or spinifex near the Oscar Ranges. The male was not calling, either early or late. Another, apparently a single bird, haunted a patch of *Triodia* not far from Fitzroy Crossing post office. This was during the rains, and this individual only remained for a few days. These were the only examples seen. They behaved as usual and had to be kicked out of the *Triodia* to make them show themselves. The single bird was heard calling when first observed.

†*Cisticola exilis* (Fantail Warbler). One pair seen. This was at Derri Spring, where some small patches of long grass were growing beside the small pools formed by the spring.

†*Malurus melanocephalus cruentatus* (Red-backed Wren). Parties of wrens in brown plumage were observed near Derby and also *en route* to the Fitzroy. Others were noted in *Triodia* near the Oscar Ranges. It was not till September

that a male was obtained in partial nuptial plumage, thus making identity certain. Several others in full plumage were afterwards seen. Five empty nests were found amongst the flower stems of *Triodia* at the Oscar Ranges. One nest contained two dried-up eggs, the markings on which appeared to be faded. These nests had probably been occupied the previous (rainy) season. In Feb., 1925, a nest was found, also in *Triodia* containing three young birds a few days old. The nests examined did not appear to be so warmly lined as in the case of nests of other members of the genus.

†*Rosina coronata* (Purple-crowned Wren). Local in the extreme, and only seen near the Crossing and some eight miles further down the river near Gogo Station. This Wren on the Fitzroy seems to favour pandanus palms (P. *aquaticus*) but the presence of the palms does not of necessity indicate the presence of these Wrens. *P. aquaticus* grew luxuriantly along parts of Brooking Creek, yet there were no Purple-crowned Wrens there. The greatest number I saw on the Fitzroy in one morning's walk was four parties of three or four individuals . Later on these resolved themselves into four pairs. They were difficult to find, as when feeding they keep low down among the pandanus roots. Also, when hunger is satisfied they have a habit of sitting, huddled up, side by side, preening one another's feathers. They twitter one to another but little, and the only song I heard was certain shrill, high-pitched notes, resembling the syllables " Cheepa-cheepa-cheepa." Possibly in a normal season the males might have been more noisy. I was greatly dissappointed at not finding nests of this species. One pair had obviously decided on a nesting site, which was to be amongst the slender branches of a recently fallen gum tree, which still retained its leaves. But when the river flowed a banker all the low scrub was submerged to a depth of several feet, and only the tops of the pandanus palms were above the water. After the waters had subsided, repeated close searches of the old haunts failed to reveal any signs of the Wrens. I searched higher ground in the neighbourhood, too, but failed to re-discover them. When last seen the males were in lovely plumage, the dark spot in the pure lilic crown being very conspicuous. At all seasons of the year this *Malurus* can never be mistaken for any other, the chocolate ear-coverts at once catching the eye.

Malurus amabilis dulcis (Lavender-flanked Wren). Are occasionally seen along the river. I was constantly on the look-out for them, but had no luck in meeting with a party.

Amytornis (*sp. ?*) (Grass Wren). I searched vainly in ideal country for any species of Grass Wren. Just before I left for home I had a conversation with Mr. Perry, overseer of Oscar Downs Station, who takes an interest in bird life. He described a dark-coloured bird which actively hopped about the rocks in certain localities of the Oscar Ranges. Unfortunately, there was not time to clear the matter up. The description he gave of these birds pointed to their being Grass Wrens.

Artamus leucorhynchus (White-breasted Wood-swallow). I noted a few pairs near Derby, and on several occasions saw others flying over the Fitzroy near the Crossing. Hitherto, I had not met with the species so far inland. They were probably migrants.

Artamus personatus (Masked Wood-swallow). Flocks seen during July and August apparently on migration.

Artamus melanops (Black-faced Wood-swallow). A resident species throughout the West Kimberley. I do not think any bred duringt 1924-1925. I saw no young bird.

†*Artamus Minor* (Little wood-swallow).– Resident in the deep gorges of the Oscar Ranges. Seen also as a migrant in other places.

Grallina cyanoleuca (Magpie-lark). Common in all parts. I saw several nests near billabongs. One contained two eggs. Another had three young birds. This was during the rains. At Leopold Downs homestead this species was very tame, being in a measure protected. Individuals regularly came on to the verandah.

†*Colluricincla woodwardi* (Brown-breasted Shrike-thrush). A few pairs inhabiting the rugged and precipitous gorges of the Oscar Ranges. Unless they were calling they were likely to escape notice, as they are fond of perching on the topmost pinnacle of some rocky spire, where they sit quite motionless. The call note is a loud, clear " Pwink," with rather a metallic sound about it. I pointed

one out to a native I had with me who was guiding me to a spring in Brooking Gorge. He knew the bird and stated it nested on ledges of rocks and laid two or three white eggs. They appear to be very local, as I could find none in suitable haunts near Brooking Springs Station.

†*Cracticus nigrogularis picatus* (Pied Butcher-bird). Rather rare. A few pairs around Leopold Downs Station and near Brooking Springs.

I observed no Magpies in the West Kimberley, but was told that in a narrow belt of country near Oopagooma Station (to north of Derby) a few pairs occur.

†*Pachycephala rufiventris falcata* (Northern Whistler). A common bird in the river forest, but only a very small proportion appeared to breed during the rainy season, 1924-1925. Two or three nests observed, and young birds seen on the wing.

Pachycephala lanioides (White-breasted Whistler). One or two in brown plumage seen in the mangroves at Derby.

†*Neositta leucoptera* (White-winged Sittella). Very local and uncommon. One small party seen near Geikie Gorge and another seen near Leopold Downs homestead. I took a perfect egg from a female shot at the latter locality, but could not find the nest, which was probably high up. This was on Sept. 18th during the dry period.

†*Climacteris melanura* (Black-tailed Tree-creeper). Pairs seen during the journey to the Crossing frequenting the coolibah trees and also the bauhinias. I never saw the species in the river forest, but it was present in the adjacent open country. I saw no young birds, and I watched a pair near the hotel very closely but never saw the female carrying building material. The throat of one bird shot was very white.

Zosterops lutea (Yellow Silvereye). Only seen in the mangroves at Derby. None inland. A few in trees and bushes in the township itself.

†*Dicaeum hirudinaceum* (Mistletoe bird). Common enough in the cooler weather, but none seen during the hot rainy season. Several varieties of mistletoe were flowering throughout. One seen in the Mangroves at Derby.

†*Pardalotus melanocephalus uropygialis* (Chestnut-tailed Pardalote). Fairly common variety in the soft alluvial banks of the Fitzroy, into which it drove its tunnels. It only appeared to breed during the cooler dry weather—June to August—and then in a half-hearted way. One or two nests examined revealed very small clutches of eggs. The call notes reminded me of those of the Pallid Pardalote, whose place it takes on the Fitzroy.

†*Melithreptus lætior* (Golden-backed Honey-eater). Parties seen in many places, apparently comprising the parent birds and the previous season's progeny, as I never saw more than four or five together. I was particularly anxious to secure nesting data of this species as but little seems to be known thereof. As far as I could see the parties never broke up, which was a bad sign. There was much flitting about from tree to tree, the flowering branches of mistletoe being the attraction. I watched in vain for the sight of a female carrying building material. My only note of this was that in one instance a female perched on the shoulders of a young bullock that had just been to water, and tugged at the hair of its bristly mane. I could not make out, however, that it detached any. Several visits to the same spot during the next few days revealed nothing further.

†*Meliphaga keartlandi* (Grey-headed Honey-eater). Odd pairs seen in the neighbourhood of the Oscar Ranges.

†*Meliphaga flavescens* (Yellow-tinted Honey-eater). The common Honey-eater on the Fitzroy. It haunted the river forest chiefly. In its habits it much resembles *Meliphaga plumula*, which it somewhat resembles in appearance. The notes, however, are rather different. A few pairs made an attempt at nesting during the cooler dry weather, but in one or two nests found only one egg was laid. The nests were in each case attached to slender twigs of the fresh-water mangroves. Fewer spider webs and more fine grasses appeared to to be used in their construction than in the case of the nests of allied species. The first nest was found Aug. 5th. During the rains no attempt at nesting was made. An egg was taken Aug. 26th.

†*Meliphaga virescens* (Singing-Honey eater). This widely distributed Honey-eater was present in many parts of the West Kimberley which I visited or passed

through. It is a resident species, occupying the open country where plenty of small trees and bushes are found. I saw neither nests nor young ones.

†*Meliphaga unicolor* (White-gaped Honey-eater). This fine species was strictly confined to the river forest, where it haunted the fresh-water mangroves. It was easily detected by its loud, musical call notes, and by its habit of chasing its mates or other birds which intruded on its own special haunts. Though it is not really common anywhere, I had hopes of securing a few sets of eggs and learning something of its nesting habits, but it only bred in a half-hearted manner and I found but two accessible nests. One was at the extremity of a horizontal limb of a fine, shady Leichhardt tree. It contained one egg. Another nest was placed about eight feet from the ground in a fresh-water mangrove and contained two eggs. Both nests were found during the rains. Two females were observed carrying building material to higher situations in which the sites of the nests could not be detected. Eggs were taken Feb. 16th.

†*Meliphaga plumula* (Plumed Honey-eater). Local specimens obtained at Derri Springs, where they came to drink.

Myzantha flavigula lutea (Yellow Miner). Very rare. A party chased near Leopold Downs, but I could not come up with them near enough to shoot a specimen.

†*Lichmera indistincta* (Brown Honey-eater). Common enough during the cooler months, and a few pairs attempted to nest. One or two nests easy of examination contained each one egg, on which the female was sitting. A nest seen with an egg Aug. 14th.

†*Glyciphila fasciata* (White-breasted Honey-eater). Rare in the extreme. Only a pair met with. It is the custom in the Kimberleys to take a siesta, after the mid-day meal, during the greatest heat of the day. I found it more profitable to take a rest under any tree that happened to be flowering near to camp. At my Brooking Creek camp, a group of four cadjuputs (*Melaleuca*) were in full bloom and simply swarmed with Honey-eaters. Whilst watching the various species, I became aware of a pair of strangers, that at first glance looked like small Bronze Cuckoos. By the expenditure of much patience I shot them both. One unfortunately was shattered to pieces, owing to the shot balling. The other was very little injured and proved to be of the present species.

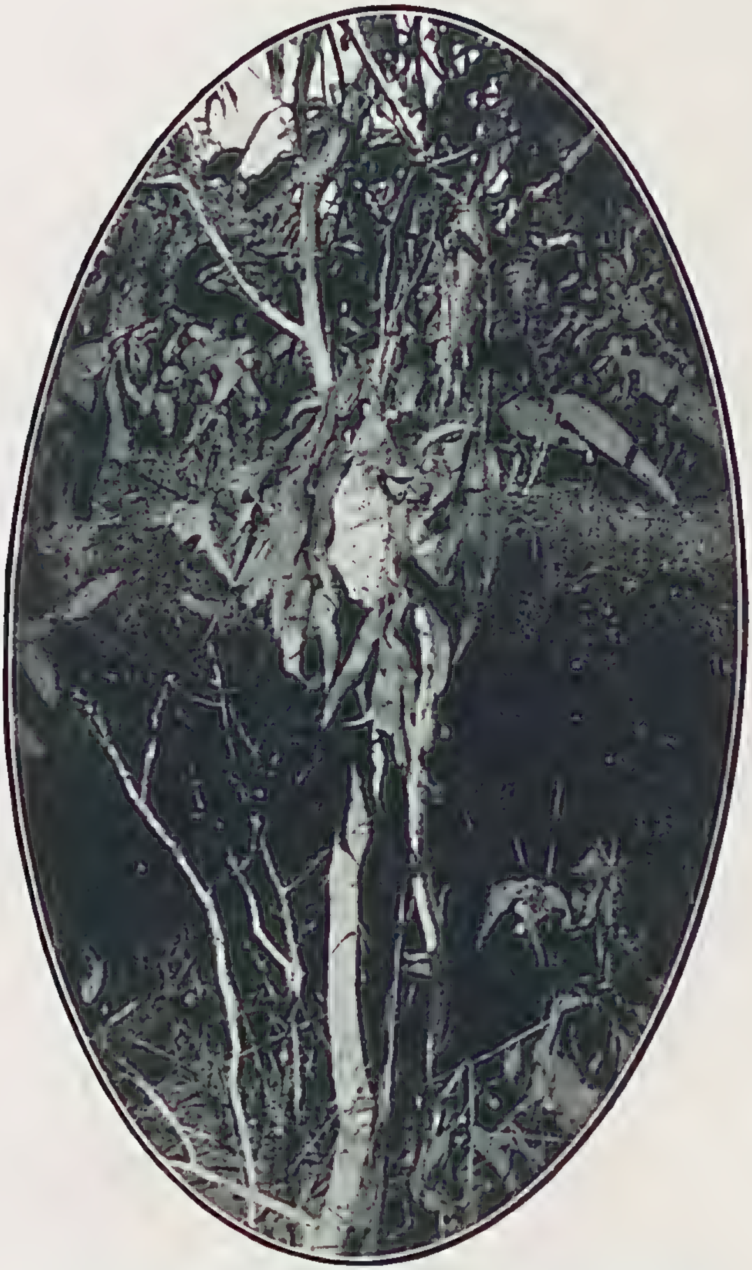
†*Conopophila rufogularis* (Red-throated Honey-eater). This little Honey-eater appeared suddenly during the month of August, apparently being a migrant. It soon became very common, but until the rains set in made no attempt to breed. It was really the only species I met with that bred at all freely. I found a number of nests. Some were in the fresh-water mangroves, others amongst the slender twigs of various species of eucalypts or amongst climbing vines, parasitic on other trees.

The general run of nests were constructed of fine dried grasses entirely, and were very deep in proportion to their width, the rim of the cup being of a smaller diameter than at the bottom part. As squalls are frequent during the rains, this was no doubt a protection against the eggs being thrown out of the nest during the agitation of the slender twigs to which it was attached. An especially beautiful nest which I watched in construction, was built in great part of Kimberley cotton, collected from some plants growing in the hotel garden. This nest took about eight days to build, and was entirely the work of the female. Three eggs were laid, and as the bird sat I could see her tail projecting over the rim of the nest, despite its great depth. Some nests were so low down in the mangroves that they were drowned by the flooded river.

†*Myzomela pectoralis* (Banded Honey-eater). I first met with this little Honey-eater near Gogo Station. It appeared as soon as the silver cadjuput began to flower in August. It became very common afterwards, and I had hopes of securing nests and eggs, but with the advent of the rains it disappeared absolutely—not an individual was to be seen.

†*Melithreptus albogularis* (White-throated Honey-eater). One small party of this Honey-eater was met with at Derri Spring. I secured the female and a bird of the previous season. They came to drink at the spring. Apparently a very rare bird in the West Kimberley.

†*Philemon citreogularis sordidus* (Little Friar-bird). This unattractive bird was very common and very noisy. It fed on the blossoms of cadjuput and



NEST OF RUFOUS-THROATED HONEY-EATER (*Conopophila rufogularis*) MADE OF COTTON.

Photo. by F. L. Whitlock.

other trees in company with a host of small Honey-eaters. Despite its abundance I could detect no signs of its nesting.

Philemon argenticeps (Silver-crowned Friar-bird). Only one pair seen and a specimen secured, too damaged for preservation at, Brooking Gorge.

Anthus australis (Australian Pipit). A rare bird in the West Kimberley, where its place is taken by *Mirafra horsfieldi*. A pair or two seen near Derby, and odd pairs in other localities.

†*Mirafra horsfieldi* (Horsfield Bush-lark). Not much in evidence till the rains set in and the grass had attained some height, when it became much more common. In motoring from the Crossing to Derby, through the great alluvial plains, we constantly disturbed them from the track. I cannot say with certainty that none bred, but I saw no young birds.

†*Taeniopygia castanotis* (Chestnut-eared Finch). This familiar Finch, the most widely diffused member of the family in Western Australia, was far less common than in localities further south. I met with small flocks on Gogo Station, Leopold Downs and at Derri Spring. I saw no signs of its breeding, which was remarkable, as hitherto I had found it ready to nest at all times of the year and under all conditions.

†*Bathilda ruficauda* (Red-faced) Finch). A small party seen near Gogo Crossing, where they came to drink at an adjacent pool.

†*Emblema picta* (Painted Finch). A few near the Oscar Ranges, where I noticed a pair building a nest in a clump of *Triodia*. This was afterwards abandoned. Later in the year a few appeared on rocky ground near the Crossing in company with other finches.

†*Staganopleura annulosa* (Black-tailed Finch). The commonest Finch on the Fitzroy. I observed empty nests in a variety of situations. Bauhinia trees were most favoured, but *Pandanus aquaticus* was not far behind. A pair or two attempted to breed in the cool weather near Geikie Gorge in the month of July. One nest I examined contained four eggs on the point of hatching.

†*Poephila acuticauda* (Long tailed-Finch). Fairly common on Leopold Downs Station and at Derri Springs, where flocks came to drink. A few shot and dissected showed no signs of breeding. Mr. Wm. Richardson, the manager of Leopold Downs, told me that as far as he knew none bred during the brief rains.

Pectorella

†*Donacola pectoralis* (White-breasted Finch). A small party appeared on some hilly ground near the Crossing, during the rains. Still smaller numbers were observed in March at Brooking Springs, amongst *Triodia*. These birds had been feeding on ants and showed no signs of breeding.

†*Neochmia phaeton* (Crimson Finch). Found amongst the pandanus palms along Brooking Creek. At the hotel a few pairs were feeding in the horse yards, and on seeds of introduced grasses in the hotel garden. They were very tame. Two pairs built nests on the top plate of the venardah, and another pair started a nest in the dining room, which had windows without sashes or netting. No eggs were laid in any of these nests, though the birds were most industrious in accumulating a great mass of material in their construction. A year or two ago they were more numerous, and I noticed their old nests in various parts of the hotel buildings.

Olive-backed

†*Oriolus sagittatus affinis* (Northern) Oriole). One or two of these beautiful birds seen at Brooking Creek. They were very silent and unobtrusive. I had few opportunities of learning anything of their habits.

Little

Corvus cecilae (Crow). When I arrived on the Fitzroy there was a fair-sized flock of crows frequenting the neighbourhood of the hotel, and at the time I took no trouble to secure specimens. To my surprise, as soon as the river began to flow they all cleared out suddenly and had not returned when I left the river. On enquiry, I was told this was the usual thing. They were supposed to go elsewhere to breed.

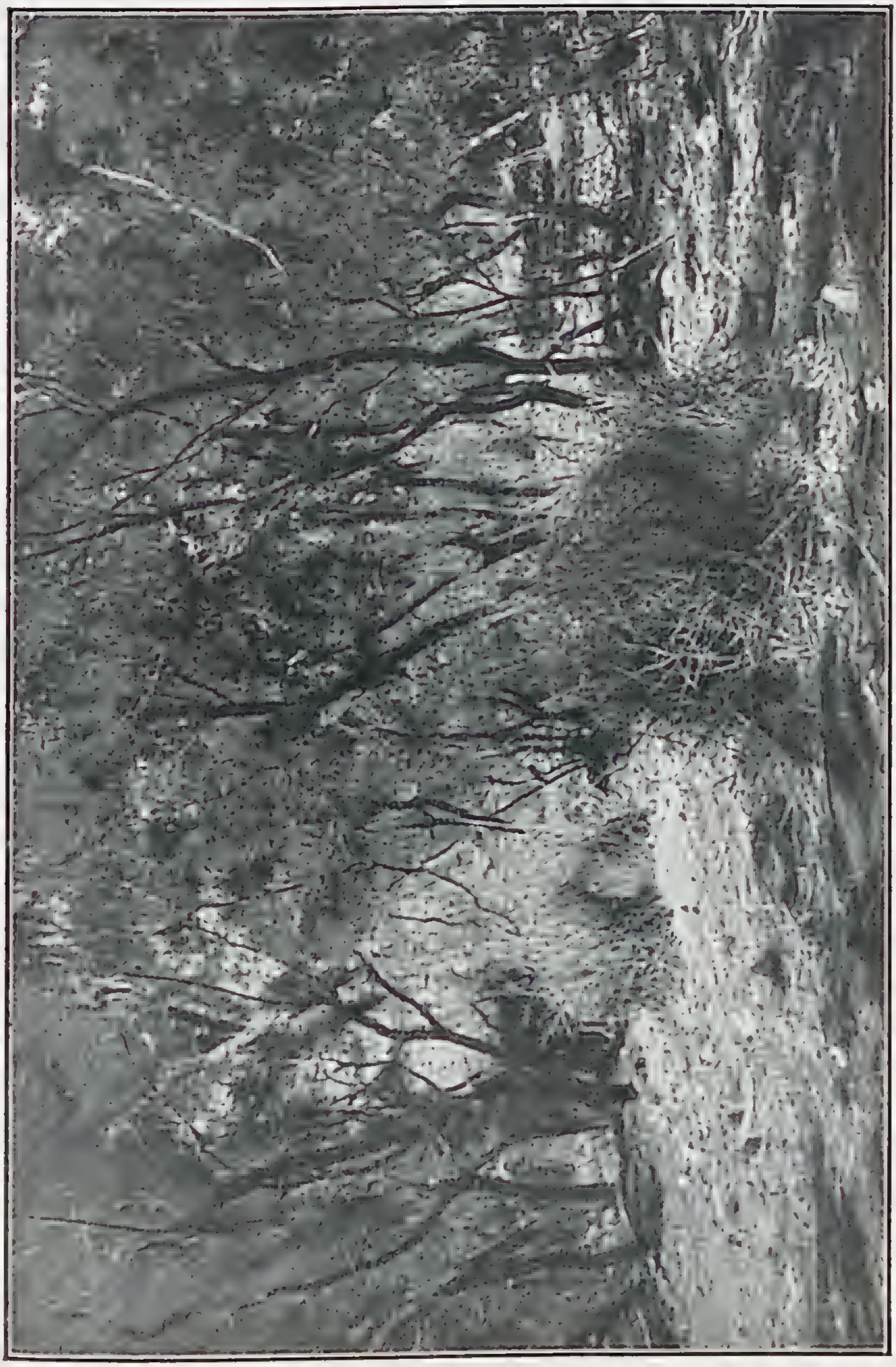
†*Chlamydera nuchalis* (Great Bower-bird). How common this Bower-bird is by the Fitzroy can be gathered from the fact that within a stretch of three miles above and below the hotel I knew of eight play-grounds on the west bank of the river alone. It was my first meeting with the species, and I put in much time studying its habits. The Fitzroy must be near its southern range in the west, as I saw nothing of it on the de Grey River years ago.

Compared with the Western Bower-bird (*C. guttata*) I found it rather shy. I tried time after time to get a photograph of the birds at the play-ground, but they would not come to the ground whilst I remained near. Even standing at a distance it was not often I saw birds hopping through the inverted arch. Frequently, however, individuals would pass me in the forest, on the way to the play-ground, carrying some object in their bills. Also, I found them less noisy and not such good mimics as the Western species (*C. guttata*). On the Fitzroy their favourite food seemed to be the fruit of the wild fig (*Ficus globerosa*) which grows abundantly, apparently all the year round, on the main arms of these fine trees. They also feed on the fruit of the wild plum, in company with the Crimson winged Lory. At Leopold Downs, in passing the meat-house, I surprised five Bower-birds which had found their way inside through a hole in the netting. They were feeding on fragments of meat on the chopping-block. They were a bit of a nuisance in the hotel garden at times. Mr. A. Gardiner who superintended its cultivation, told me they carried off both ripe and green chillies, and also damaged the tomatoes. He told me one surprising fact, which I afterwards confirmed by personal observation, *viz.*, that it was very rare to see a male showing the pink feathers on the nape. During four or five years he had only shot one specimen in this plumage. My own experience was the same, as I only saw a single bird possessing this beautiful feature, despite the fact that I examined all I came near with the aid of a small field glass.

The play-grounds were nearly always near water, and though the creek at Leopold Downs was dry, the double play-ground I found was on its banks. They were substantial structures of dry twigs, firmly fixed in the foundation below. I was watching one in course of construction, having found it when only small progress had been made. Even at that period a few " play-things " had been accumulated. Unfortunately, the flooded river submerged this example before it was finished.

The finished structure in some cases formed a complete arch, and I found the walls differed in thickness to a considerable extent in the different play-grounds. The following are the dimensions of a play-ground within a quarter of a mile of the hotel :—Length over all 2 feet 6 inches ; width 1 foot 10 inches; height of archway 1 foot 4 inches. The outside walls were of coarse, dried twigs, with finer twigs as an inside lining. No dry grass was used in any play-ground I found. The play-things consisted chiefly of flat, blue-grey stones, but many fragments of bone and pieces of light green clear glass were present, and though fragments of dark bottle green or brown glass were innumerable close at hand, not one had been selected. The only shells seen were a few fresh-water mussels. In other play-grounds were green and white galls, taken from gum trees. Mr. Edward Delaney, who had a camp on the opposite side of the river, missed his spectacles on his return to camp one day. He knew there was a play-ground near, and set some natives to search for the missing articles. They were eventually found close to a play-ground, and no doubt would have been added to the collection there in due course. I was curious to estimate the number of objects at the above play-ground. The result exceeded 700 stones, etc. and these were being constantly added to, until there were quite a thousand present. After all their labour these birds were flooded out, the play-ground being for several weeks under water. When the flood subsided everything was covered with silt but the birds nipped off every twig to form the platform of a new play-ground, and carried away all objects exposed to view. The same thing occurred at other play-grounds, the revived structures resembling nothing so much as dilapidated brooms. At one favoured spot were the remains of five play-grounds within an area of half a chain. I only found one play-ground clear of the river-forest. Even this was sheltered by some small acacia bushes. The play-ground at Leopold Downs was in a tea-tree thicket.

The Great-Bower bird was one of the few species that bred during the rainy season of 1924-1925. I found four more or less accessible nests. They were frail structures, the egg in two cases being visible from beneath. The first nest was supported by slender trailers of a pendant vine, and was quite inaccessible by climbing. I tried to obtain the one egg by spreading a rug on some bushes below and tilting the nest till the egg rolled out. This was successful up to a certain point, when a springy intervening twig deflected the egg in its descent, so that it fell outside the rug and was ruined. Another egg was obtained with



DOUBLE PLAY-GROUND OF GREAT BOWER-BIRD (*Chlamydera nuchalis*).

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difficulty from a clump of mistletoe, parasitic on a *Eucalyptus papuensis.* This nest was about 25 feet from the ground. A third nest, in a bauhinia tree, also concealed by mistletoe, was easily examined; it contained one egg. A fourth nest, with a very handsome heavily incubated egg, was in rather slender branches of a young native chestnut. Only twice did I see the female on the nest and in each case she had her tail turned towards me, and failed to detect my presence. Evidently she steps off at the first sight of an intruder. With rude, fragile nests it is difficult to distinguish an old one from a new one, and others I found may have contained an egg but it was impossible to determine the point. All nests I found were within 200 yards of an occupied play-ground. When a nest had been robbed, no further attempt at breeding appeared to be made. The natives told me that at times they found two eggs in a nest, and on rare occasions as many as three. Eggs were found during January.

The Adelaide Rosella (*Platycercus adelaidae*),

By Edwin Ashby, F.L.S., M.B.O.U.

Early in May last I wrote the " Check List Committee " asking them to place the Adelaide Rosella (*Platycercus adelaidae*) on the Check List, and not to treat it as a sub-species of *P. elegans.* I have consistently maintained this view in the past, and in a recent re-examination of a number of skins, my previous view has been fully confirmed. Messrs. A. J. and A. G. Campbell have prosecuted a similar investigation and state that they are of the same opinion.

In my opinion to retain *P. flaveolus* and *P. elegans* and to merge *P. adelaidae* in the latter, is incorrect. To me only two courses are open:

(*a*) To recognise the three as distinct species thus,

1. *Platycercus flaveolus*, Gould, 1837.
2. " *adelaidae*, Gould, 1840, with sub-species *fleurieuensis*, Ashby, 1917.
3. " *elegans*, Gmelin, 1788.

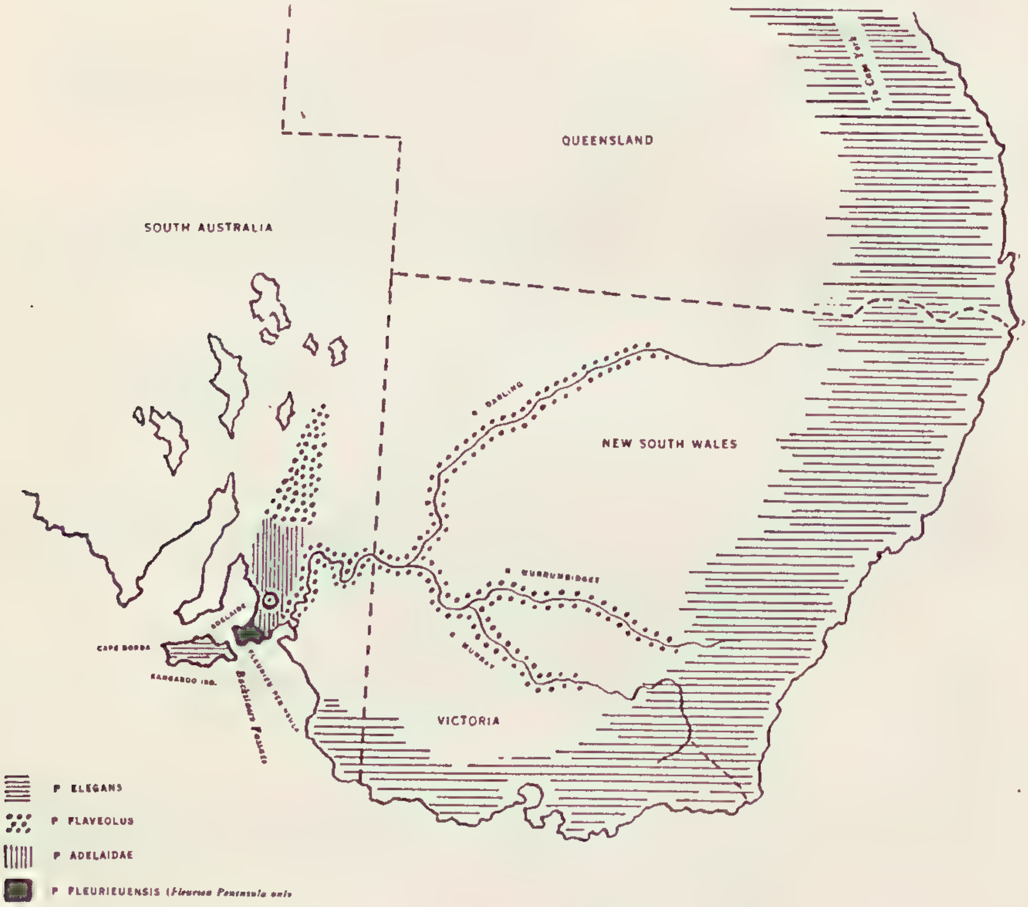
(*b*) To recognise

1. *Platycercus flaveolus*, with sub-species *adelaidae* (form showing red in place of yellow and *fleurieuensis* (extremely red form).
2. *Platycercus elegans.*

While I believe that the second arrangement is probably the most correct, before accepting this, I should have preferred to have examined a much larger series of skins, commencing with the northernmost *flaveolus* and ending with the southernmost *adelaidae*—these to be collected at the same season of the year and following a geographical sequence. The result will show, I believe, a complete gradation from the highly coloured *fleurieuensis* in the south to the extreme pale yellow form in the north or drier districts.

This is not ignoring the fact that racial habitats can most likely be recognised, the margin of overlapping often being quite a narrow one.

The typical colour of *Platycercus elegans* is carmine (Ridgway's Colour Standards, pl. I.). From Cape York in North Queensland to Kangaroo Island, the extreme southern and western limit of its range, typical specimens of this colour occur. Northern specimens are a dwarf race but they exactly match Ridgway's plate of carmine; on the other hand many southern skins are a little brighter (less depth of tone) and I have seen skins from Victoria (and I think the south east of South Australia, though I have not one in my collection at the present time), which are an exceptionally brilliant carmine. These are still quite distinct in the character of the colour from the scarlet-red (Ridgway, Pl. I.) of the most brilliant race of *adelaidae*, viz., sub-species *fleurieuensis*, Ashby.



MAP ILLUSTRATING DISTRIBUTION OF CERTAIN SPECIES OF PLATYCERCUS.

As I have before stated, the true carmine coloured *P. elegans*, range from North Queensland, through New South Wales and Victoria to the south-east of South Australia where they disappear on the mainland, but re-occur in Kangaroo Island. There they are the only representatives of the genus *Platycercus* and extend to the western extremity of that island, Cape Borda.

Two hypotheses may be propounded to account for the existence of the brilliant scarlet-red form of *adelaidae* on the Fleurieu Pen-

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NESTLING BOOBOOK OWLS, IN HOLLOW AT TOP OF DEAD TREE.

BOOBOOK OWLS, ONE MONTH OLD.

insula : (1) That the yellow in the plumage of the northern (dry country) form known as *P. flaveolus*, owing to ecological or other influences, has been gradually transmuted into the scarlet-red of *fleurieuensis*, or . . . (2) That at some period partial hybridisation has occurred by some examples of *elegans* flying across Backstairs Passage, 11 miles in a direct line, and that the infusion of this blood has brought about the race known as *fleurieuensis*.

Whichever is the true cause, I think there can be no doubt that there is little or no justification for considering *adelaidae* to be conspecific with *elegans*. When we consider the great extent of the range of *elegans*, its adherence to type characters is most remarkable, for while melanote mutations exist, apart from size differences, no very distinct races have been evolved.

The Boobook Owl and Tawny Frogmouth.

By DAVID H. FLEAY, R.A.O.U., Ballarat, Victoria.

(*With Photographs by the author.*)

MUCH discussion is constantly going on concerning the originator of the nocturnal calls of "mopoke"—whether Owl or Frogmouth. I noticed in the *Emu* of July, 1925, an interesting paragraph on the New Zealand Spotted Boobook by Mr. R. H. D. Stidolph, R.A.O.U., of Masterton, N.Z., which has prompted me to put forward some notes which may be of interest.

For the past four years I have kept Boobook Owls (*Ninox boobook*) in captivity, and also, for a shorter period, a pair of Tawny Frogmouths (*Podargus strigoides*).

The Boobook Owls were taken at a very infantile stage and are remarkably tame. They greet me each night, just as Mr. Stidolph observes, with a rapid succession of "por-por-por-pors" uttered as many as twenty times. In fact, one frosty evening it was given by one bird in his staccato fashion more than fifty times.

From July onwards, especially in the spring of the year, Boobook Owls redouble their nocturnal calls. When I enter the cage at night during these months they greet me with the peculiar sharp cry of "Ow, ow, ow!" or "whow, whow!" or "who, who!" just as it strikes the listener's fancy. Generally this cry begins with the "who" and gradually merges into and ends in the well-defined "ow!" This cry, however, is mainly given by the large female birds; the male birds and one particularly—as he does it from my shoulder—give vent to the familiar "mopoke! mopoke!" which is so often heard at night. Sometimes on calm nights there is a regular chorus from my birds, for both male and female birds are capable of the "mopoke" call, and no two birds utter it in the quite same key. One bird particularly growls the notes, being quite a humorous contrast to the others ; but there is no mistaking the quick and short " mopoke " call of the Boobook Owl.

Last season (1924) a pair of my captive Owls mated and began to prepare a hollow log which I had given them. From the early nights of August the two birds began to shred every particle of bark which had been deposited previously by me in the hollow, but the eggs were not laid until early in November.

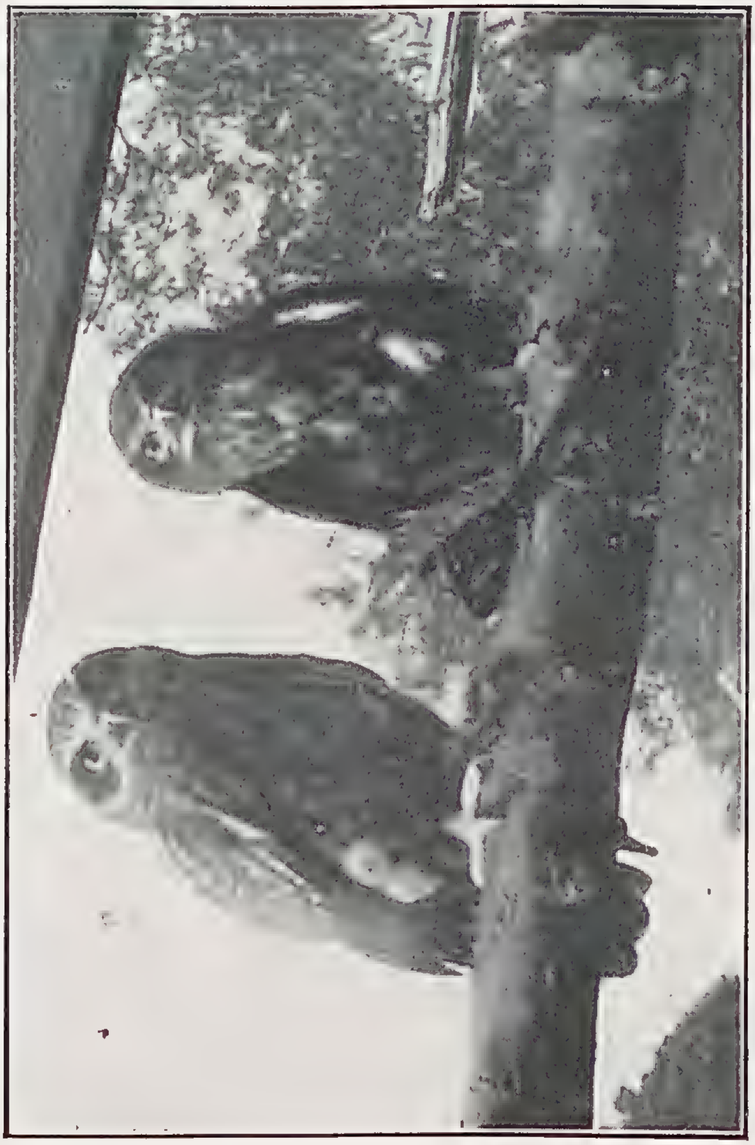
It may be as well to mention here that when an Owl is unwell he will eat bark in order to bring up the usual pellets of which birds of prey are constantly ridding themselves.

The male Owl was very affectionate towards his mate, and they conversed frequently in softly uttered " por-pors." He called " mopoke " practically the whole night through from August onwards. Unfortunately the female had contracted a chill while moulting some ten months previously, and brooding on her large, rounded eggs seemed to be a big effort for her. It is sufficient to say that one sad morning the bird was found dead on her eggs. The male never seems to have forgotten his loss, and has mourned for months, though he has several other Owls to keep him Company.

If the Boobook Owl is captured, or if two of the birds happen to seize upon the same prey, they are capable of a very loud and shrill scream. The call of the fledgling Owls is a gentle trilling whistle, almost reminding one of a little cricket heard in the summer months. When they become excited I have known the Owls to start on the " por-por-por " notes, change to " ow, ow ! " and then terminate the proceedings by calling " mopoke, mopoke, mopoke ! ! " One can also fit " Boo-book " to the notes, or the aborigines' " Buc-buc."

In common with other species of Owls, the Boobook occasionally sleeps throughout the day holding a dead mouse or bird in its talons. The adult birds maintain their baby calls to me, except that the shrilling noise has now become a deeper rumble. It is exceedingly engaging to watch the Owls playing about on the ground at night. They raise their wings, move their uncanny heads round and round in a circling manner, and dance about on their curved talons, making tremendous eyes at each other from the shelter of a stump. They delight to sink their talons into the shoulder of my coat, imagining that they have struck some new type of mouse. A visiting Owl from the bush is very keen on dashing at the cages in which I keep some pretty little " flying squirrels," and bush mice, to the great terror of the little inhabitants.

The Tawny Frogmouth is one of our bush comediams ; you only know his humorous ways when he is trusting and tame. After swallowing some palatable morsel his beak comes together with a satisfied clap, and he is extremely dexterous at beating mice, etc., into a pulp before swallowing them at a gulp. These birds—also adult —still simulate infancy with me, using their baby calls which are really a succession of groaning, rasping noises hard to describe. The



BOOBOOK OWLS.

Male—Right. Female—Left.

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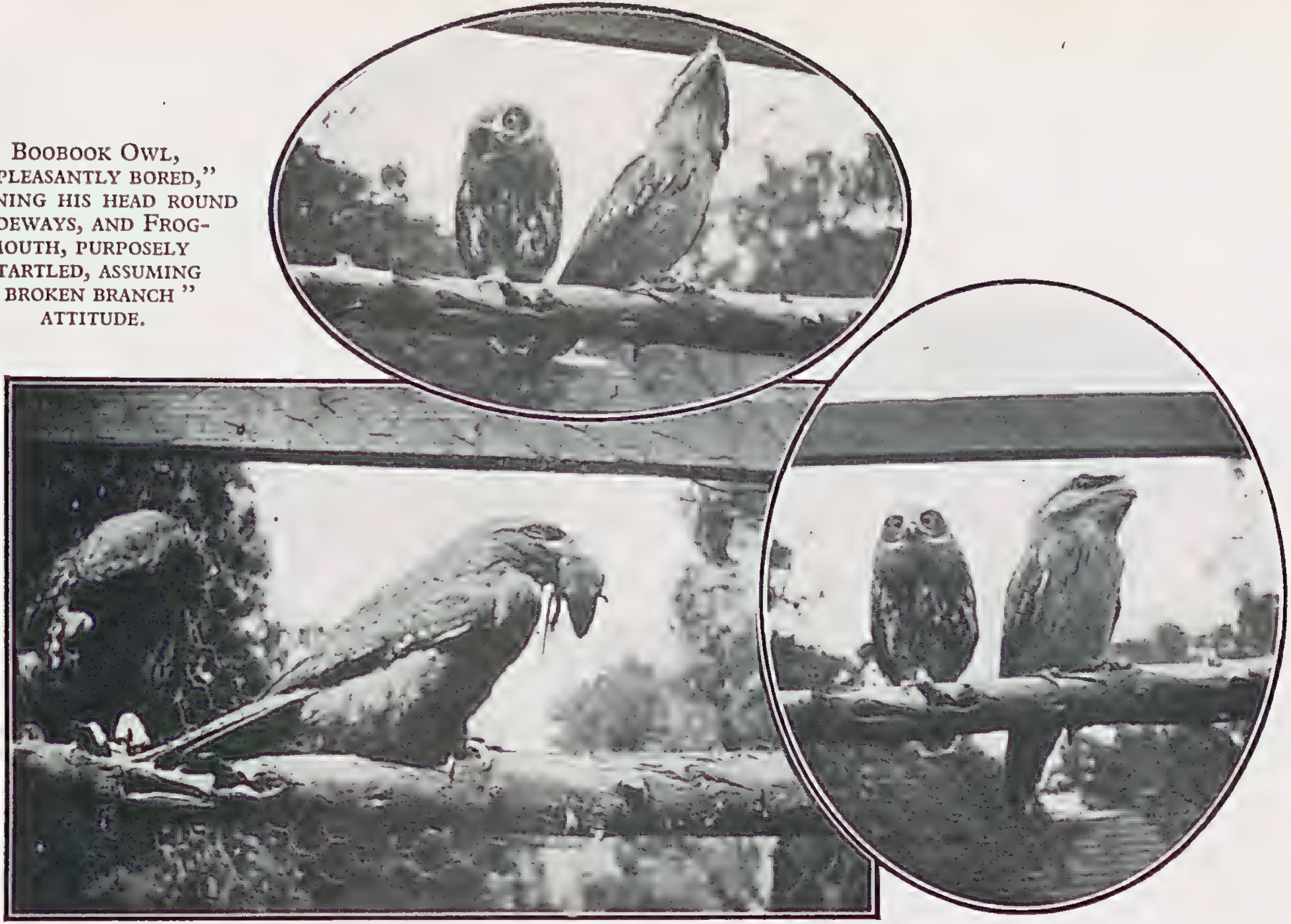


BOOBOOK OWL,
" PLEASANTLY BORED,"
TURNING HIS HEAD ROUND
SIDEWAYS, AND FROG-
MOUTH, PURPOSELY
STARTLED, ASSUMING
" BROKEN BRANCH "
ATTITUDE.

FROGMOUTH BEATING HALF-GROWN
RAT AGAINST BRANCH BEFORE
SWALLOWING IT.

BOOBOOK OWL AND
FROGMOUTH.

Frogmouth is also capable of a tremendous scream when captured in his wild state.

These birds greet me each night with a succession of " oom-oom-oom-ooms," uttered from twelve to nineteen times. It is quite a common sound, as I have heard it coming mysteriously across the Murray River lagoons by night.

During daylight my birds use their protective " broken-branch-like " attitude only on the overhead appearance of Hawks. Directly the male sees the Hawk he " freezes " immediately, at the same time uttering " oo, oo ! " quickly—at which sound the mate, even if she has not perceived the Hawk, " freezes " also. On several occasions by mimicking this danger signal I have caused the birds to " stiffen out " on the instant.

The male bird, who is the talkative one, sometimes calls to his mate in a succession of notes which are too rapid and too low to distinguish from one another. Always when calling, the birds shift from one leg to the other, at the same time swaying to and fro in a comical manner.

The Tawny Frogmouth has another call, and this is where confusion may arise. It is two deep-sounding, loud " ooms," uttered in two distinct syllables, and which I define as " morepork." This " oom-oom ! " to which I was listening intently several nights ago when camped in thick forest—where the Boobook Owls were calling also—is far louder and even farther sounding than the " mopoke " of the Owl. It is a slower and more deliberate call, and is repeated at much slower intervals than the call of the Boobook. I hold—and have had the satisfaction of being confirmed in my belief by observation of both species in captivity—that both birds thus call somewhat similarly, though the Frogmouth usually calls in a succession of ooms " and on rare occasions gives forth its " morepork " note.

Both these rarely-seen birds have vanished when daylight comes again, and if the bush people see the slow-moving Frogmouth asleep in a tree from which " morepork " issued the previous night, then of course that bird to them is responsible for the " mopoke " calls they hear so often—and they have a certain amount of truth on their side.

Spread of the Goldfinch.—A correspondent in the July issue of *The Emu* remarks on the presence of European Goldfinches (*Cardulelis carduelis*) at Armidale (northern N.S.W.) and the editor supplements the note by stating that he has seen the species at Tamworth (a few miles further north), but no further north. These pretty birds, however, have for several years been fairly abundant in the south of Queensland ; a few pairs may be seen at almost any time about Stanthorpe orchards. Doubtless they have reached Warwick ere this and are spreading over the Darling Downs. In 1919 I saw a pair flying about Stradbroke Island, Moreton Bay, but judged them to be escapees from confinement. The Goldfinch may do a little harm as a seed-eater, but it is certainly more desirable than most other introduced birds.—A. H. CHISHOLM, Sydney.

Tasmania's Indigenous Birds.

BY M. S. R. SHARLAND, R.A.O.U., Hobart.

NO apology is offered for this brief review of the indigenous birds of Tasmania despite the amount of material that from time to time has been written on them and incorporated in works on Australian ornithology generally. It is, however, probably safe to say that, with the exception of a few who seriously study ornithological classification and distribution, mainland ornithologists are not familiar with the birds actually confined to Tasmania, just perhaps as the average birdman in Tasmania is not fully conversant with the native forms of New Guinea or any other island of the Australian region. To most persons, however, isolated forms are of special interest. The thirteen species peculiar to Tasmania have nothing very much to command attention ; there is no wide line separating them from similar forms on the mainland. What interest there is perhaps is due to their comparatively large size compared with that of allied species in other States, but as they are insular forms I think myself they hold a certain attraction.

The Native Hen (*Tribonyx mortieri*) is to my mind the most fascinating on account of its swimming powers, distribution and absence of flight, and we have interesting varieties of Bell-magpies, Honeyeaters, a Robin and others. Naturally, these birds are not migratory, but they have spread to adjacent islands, such as Maria, on the East Coast, and the different groups in Bass Strait to the north, which in spite of their small dimensions offer a variety of feeding grounds from marshes and swamps to timber, and from timber to mountain tops. The Native Hen I have found from sea level to an elevation of over 2,000 feet ; the Bell-magpies, of course, frequent the uplands, and there is no mountain too high for certain of the Honeyeaters.

The notes on the following thirteen species do not in any way pretend to be a complete record of the habits of the birds—they are purely from personal observations in different parts of the State extending over a period of about four years.

Tasmanian Native Hen (*Tribonyx mortieri*) :—The Tasmanian Native Hen is one of the most interesting of the indigenous forms because of its size, its association with moist places, the absence of the power of flight, and its swimming habits. There are few people in the country who are not familiar with the bird. Every district where there is either a river, swamp or fresh-water lake holds its quota of the species, though perhaps the midlands may be regarded as its stronghold, and a few are scattered over the north west and the inhospitable west coast. It is about the size of the Swamp Hen (*Porphyrio melanotus*), though the legs are not so long and are more adapted for running. The plumage is a uniform greyish olive, lightly washed with chestnut brown on the crown of the head and back of the neck ; there is a conspicuous splash of white on the flanks, the bill is short and yellowish-green and the irides are a bright red, a colouring that harmonises admirably with the birds' surroundings. The sexes are alike. The nest is generally placed in the centre of a clump of reeds or tussocks close to water, sometimes on flat rocks or under old stumps. It is made of soft grass, the hollow centre being about the size of a dinner plate. A clutch of eggs ranges from seven to nine.

A question that rarely fails to create a certain amount of argument is whether or not the Native Hen can fly. Although the bird is gifted with remarkable running power it seems to have lost the proper use of its wings. It can move over the ground fast enough to escape from its enemies, which in this case are usually dogs, and when letting itself out at full speed the short, rounded wings are employed principally to balance itself and sometimes to assist in getting over the ground, the bird flapping them as a Coot does on water. But its wings are too small to sustain it in flight, or even to allow it to rise. Personally, I can say I have never seen the bird in flight or attempt to fly, though others have told me that when hard pressed on a downward run, with water and safety in front, it sometimes manages to lift itself from the ground and flap a short distance down the hill. From the swiftest dog, the bird, so far as my experience goes, will not fly, but after a short and rapid run allows itself to be caught with not so much as an attempt to use its wings. As a matter of fact, if the bird be caught, and thrown high in the air, it will spread its wings but fail to fly, landing heavily on the ground. Evidence on the question of whether it can fly but will not do so appears to be definitely in favour of the Native Hen being classed with the Emus, Penguins, Cassowaries, and others, as an entirely flightless species. An examination of the wing is sufficient to show that flight, if any, would be so weak as to be practically useless. The end of the wing comes about half way between the shoulder and the tip of the tail, whereas to enable the bird to fly it should extend at least to the end of the tail.

So well known are the powers of running in the Native Hen that little need be said of them. The bird having lost the power of flight, has, like other flightless land birds, made up for it with an extreme swiftness of foot. While I was travelling round the East Coast a few months ago several Native Hens were disturbed from the side of the road where they were feeding, and one, surprised by the appearance of the motor car, shot out from the tussock on to the middle of the road and commenced to run in front of the car. The driver, at my request, stepped on the throttle, and for about 100 yards we made the bird go between 25 and 30 miles an hour. Even at that speed it did not appear to fully extend itself. Another one later on was getting up to 15 miles an hour on the road when he tripped, turning a complete somersault, and just escaping the wheel of the car. Although completely destitute of the characteristic web-foot of water birds, the Native Hen takes readily to water and swims strongly, which undoubtedly accounts for its presence on certain islands a short distance off the coast, unless, of course, it was carried there by man or reached there before a possible subsidence of land. I have seen them swimming flooded rivers, taking to the water voluntarily; and when pressed at all they dive, using their wings like paddles to assist in propulsion. When unmolested they become fairly tame; in the evenings round our bush hut they gathered and annoyed us with their most excruciating calls, resembling for all the world dozens of saws being sharpened with squeaky rasps. In the breeding time, and when calling their young, they utter a short grunting, or guttural noise.

For some weeks after they are born, the young of the Native Hen are clothed in sooty down, which, when they are about half-grown, gives place to a dark shade of green, and which is like that of the young of Grebes and Emu, longitudinally striped with white. Until they are able to pick up food for themselves the young are fed on matter regurgitated by the parent birds enclosed in a thick mucilaginous substance. The adult birds are good tree climbers, finding their way safely up any slanting tree, sometimes going 20 to 30 feet high. They flutter down like fowls, landing heavily on the ground.

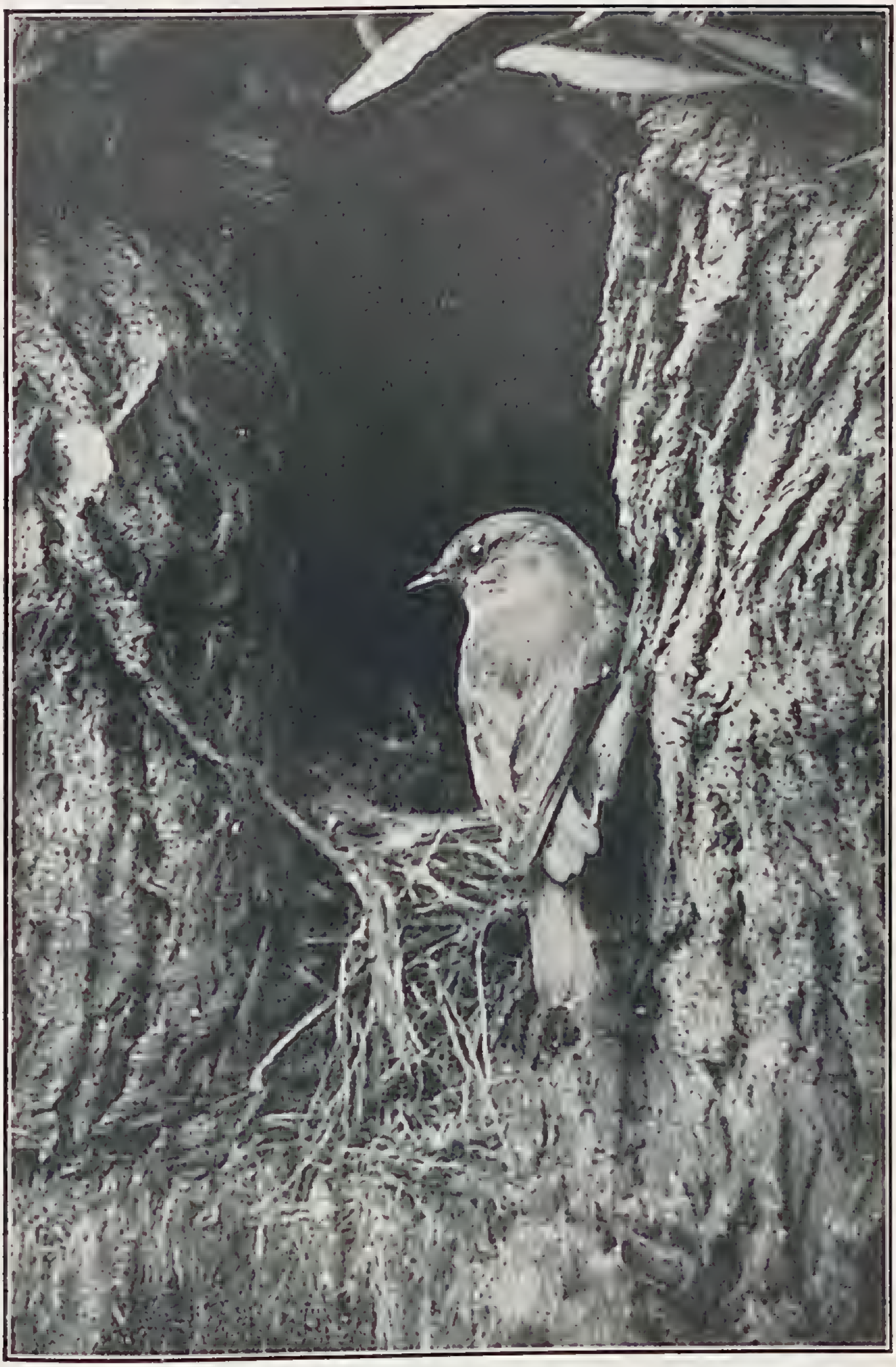
Green Rosella (*Platycercus caledonicus*) :—The green Rosella, as Dr. Leach now calls it, the Green Parrot or Parrakeet, as it is locally termed, is a beautiful member of the *Psittacidae*, and next to *P. eximius* is the commonest of the order in Tasmania. While not by any means a gaudily coloured species it is a very handsome bird, as a close examination of a good specimen will reveal. Its plumage, the greater part of which is greenish-yellow of varied intensity, is a mixture of crimson, blue, olive, pale yellow and blackish-brown, with which the wing feathers are lined. It is fairly widely distributed both north and south, but it is safe to say that its stronghold is the upland of the midlands. A fine, plump bird when full grown, it is sought after by the hunter, and in addition to making a good table bird does well in captivity, often being crossed with the Rosella. The bird has developed fruit-eating proclivities to a certain extent, and may be seen in orchards when its natural food supply becomes short. Often, however, flocks of them fly into an orchard and settle on the ground where they search for seeds paying no attention to the fruit above; their intentions may in such cases be misconstrued. I understand that these birds are bringing high prices among dealers in England. So far I have not had the good fortune to find a nest of the species, though a little time devoted to a search in the districts which it frequents would undoubtedly reward one with such a discovery. One day last year, on the slope of Mt. Wellington, I was watching a pair of Pardalotes scraping out their nesting hole in a bank when a Green Rosella flew from a neighbouring tree to the first branch of a gum about 30 yards away, and then hopped to a hole at the junction of the limb and the stem. The bird, which to all appearance had a nest there, remained on the edge of the hole a minute or so uttering a few low notes, but did not enter. The hole was about fifteen feet from the ground, and I decided to keep it under observation. Nothing, however, came of it, and an inspection revealed no eggs. I think the bird was merely deluding me into imagining she had her nest there, when in reality it was in another tree close by. I understand this is a ruse utilised by this parrot. It nests in the vicinity of Pitt-water each year, and I have known of young ones being brought from that locality.

Dusky Robin (*Amaurodryas vittata*):—Known from one end of the island to the other, the Dusky Robin favours both densely timbered tracts and more or less open country, and in outback settlements becomes quite tame and accustomed to human beings. A common local name for the bird is the "dozey" Robin, which it has earned by its seemingly mournful disposition viewed in comparison with other members of the Robin family, which are essentially lively and full of energy. Giving it human characteristics, it is thoughtful, says little, and for the most part keeps its own company. But in the spring time it livens up to a great extent, and one or two of its short notes possess a certain sweetness and charm, the sound travelling a considerable distance through the bush on a still day. Its brightest notes, though seldom uttered, might be interpreted as "choo-wee; choo-we-er," frequently repeated. It has one or two others difficult to describe and somewhat mournful. The Dusky Robin invariably chooses the tops of stumps and posts to rest upon, and it differs from other Robins in that it remains perfectly still while perching, as if an integral part of the wood, and does not flick its wings, a mannerism common among the pink and red-breasted species. This flicking action of the wings by some species suggests to my mind that the birds are contemplating flight and suddenly change their minds. Is there any reason for it, or is it merely an inherited characteristic of the race, as the bobbing of the head is among certain waders and Plover, the jerking of the tail among pipits and some water fowl, and the curious shrugging of the shoulders among the Cuckoo-shrikes? The Dusky Robin is clad in a far from conspicuous or beautiful plumage, but its dull grey coat, relieved in places by patches of white, blends admirably with the situations in which it is found—among thick timber, with its nest in the crotch of an old willow or stringy gum on the bank of a mountain creek, or on plains among the stumps and grey, dead grass. When the bird is at rest it often takes a keen eye to pick it out from its surroundings, so well do the greys of the breast and the mottled feathers of the back harmonise with the background; but immediately the bird takes flight the irregular shaped white patches on the outer part of each wing bring it immediately into vision as it moves from log to log or post to post. As soon as it is at rest the white patch is folded in with the closing of the wing. The bird is larger than either the pin or red-breasted species.

The Dusky Robin is an affectionate little bird and often seeks the company of man. In the days after leaving school I used to spend a large part of my time at a bush hut a few miles from Lake Leake on the eastern tiers which was known as Kearney's Bogs. I was in close association with many kinds of bush and marsh birds, not the least of which were the Dusky Robins. With encouragement, they became so tame as to subdue their natural shyness and enter our primitive little habitation in search for crumbs and other tit bits that might have been left over from a meal, while if at any time we were out in the bush and sat down for a brief spell or to eat our lunch, we would be sure to find after a few minutes a Dusky Robin viewing us from a stump or log a few yards away. They always nested round the hut. I have at other times noted the fearlessness of the Robin. One day on a country rifle range I observed a bird hop on to the boot of a workman engaged in digging trenches and extract a worm from a cake of mud adhering to the leather, while on another occasion one of the birds which was feeding about the range at the time alighted on the end of the barrel of a rifle which was then aimed at the target and which the rifleman was upon the point of firing. Then, again, I have seen them calmly perching on the top of the targets while bullets were penetrating the canvas a foot or so below.

Although having a variety of nesting places the Dusky Robin for the most part builds in the niche of a stump or in the bole of a gum tree, usually on the southern side, as if in shelter from the direct rays of the sun and the cold northerly winds which alternately occur before the breeding time is over. It likes a fairly deep hole, mostly close to the ground. Some nests have been discovered from 15 to 20 feet above the ground in the side of a tree, but, generally speaking, it is somewhat unusual if the observer cannot reach the nest without leaving the ground to do so. Sometimes it builds on top of the nest of the previous season. The nest is not so carefully constructed or so finely finished off as those of the Pink and red-breasted Robins; the ends of the grasses from which the home is made are allowed to protrude untidily and no attempt is made to hide the nest; but the interior, lined with hair, is usually well made, and altogether the home is quite comfortable. From the beginning of August to October the birds appear to nest, and two broods are usually reared. Three, sometimes, four, olive green eggs are laid. The young are a mottled dark grey, almost black in parts, and fly in about ten days. The dusky Robin is a stationary species, being found in one part the entire year.

Tasmanian Thornbill (*Acanthiza ewingi*):—This little inhabitant of the scrub bears a close resemblance to the Brown Thornbill (*A. pusilla*), and some observers regard it as merely the scrub form of that species. It has the characteristic brown-banded tail, slightly tipped with white, and there are slight striations on the throat and chest, but the tail is slightly longer. The nest of the species differs from that of *A. pusilla* in that it is much more compactly constructed, there being a few loose ends of grass and other material suspended below, as was proved by the discovery of a nest on the occasion of the last Tasmanian camp-out of the R.A.O.U., at Adventure Bay, Bruny Island. The nest is placed fairly close to the ground, mostly in bracken, and sometimes in rushes or a low musk tree near a creek. It is constructed of grass, with occasionally a little bit of moss, cocoons of spiders, and leaves. The interior is made from fine grass, a few feathers and at times a little fur. The bird is not gregarious like the Brown Thornbill, usually being found in pairs on the slopes of Mt. Wellington, close to Hobart, as well as in the forest country of National



TASMANIAN DUSKY ROBIN (*Amaurodryas vittata*) AT NEST IN TREE.

Photo by M. S. R. Sharland, R.A.O.U.

NATIONAL MUSEUM OF MELBOURNE

Park. Littler (*Birds of Tasmania*) interprets the note of the bird as "zit zit zit, whoorl," which I think is a very good rendering.

Brown Scrub-wren (*Sericornis humilis*) :—Widely distributed throughout Tasmania, as well as on the islands of Bass Strait, the Brown Scrub-wren frequents both open and timbered country, although its natural home seems to be in the scrub. One of its notes reminds me of the revolutions of an unoiled wheel giving out a squeaky noise, and is kept up with surprising regularity for an appreciable amount of time. The bird is comparatively tame, and in the bush will come to the edge of the scrub and hop round about the observer provided he remains still. Ever on the move, it hops from one bush to another, spending a great part of its time on the ground, where it secures its food. The nest, which is placed in a thicket on the slope of a rise, is somewhat large for the size of the bird, and it composed of dead leaves, grass and debris collected from the ground. The clutch is three to four, the colour being a light buff, splashed and spotted with umber and brown. At Adventure Bay last year a nest of the species was found to contain two eggs of the Bronze Cuckoo and none of the rightful owner.

Scrub Tit (*Acanthornis magna*) :—Of this species I am not in a position to record very much, because the bird is of a very retiring nature and time has not permitted me so far to give it much attention. It haunts the thick scrub on the slopes of Mt. Wellington and Mt. Field, and I have noticed it along some of the deep gullies cut out by the Coal River, near Colebrook. It has a very pretty song that harmonises with the situations in which the bird is usually found—along the banks of fern-clad mountain creeks, on the edge of waterfalls, and in damp gullies. It feeds for the most part on the ground, nimbly running over logs and tree stumps, and prying into any place likely to hide a luckless insect. In some places, it is on record that the nest is found as low as three inches from the ground and sometimes as high as from nine to ten feet in tall ferns or trees. The nest is globular in shape, with a side entrance, and is composed of strips of bark, rootlets and a little green moss, the lining being fern down, feathers and fur. Three eggs are laid as a rule, sometimes four, the ground colour being a pearly white, blotched with reddish-brown.

Many-spotted Pardalote (*Pardalotus quadragintus*) :—This, the smallest of the Pardalotes, is confined to the heavily timbered parts of the country, more especially the south. So very seldom does it leave the tops of the tall trees that it is rarely seen, while its sombre-green coat and light greyish underparts match the surroundings so well that in some places it is only visible with the aid of field glasses, even then being difficult of observation on account of its incessant movement. In fact, taking it all round, it is one of the most difficult birds of the trees to examine. It is only about three and a half inches long. So far I have only once discovered the nesting place of the species, which was in a tall tree a few inches below the nest of the Tree Martin, but it was in such a position that I was unable to reach it. I was standing on a limb of the tree about 15 feet away from the entrance of the hole, when a Martin flew into its nest and the Pardalote came out at the same time. I saw this on the screen of my reflex, and immediately exposed a plate, but while I secured a fine picture of the Martin just about to enter its hole, the Pardalote must have just got out of vision, for there was no trace of it when the plate was developed. The bird perched on a neighbouring branch for a second and I had a good view of it. It is by no means common about the south, though one or two are occasionally seen on the slopes of Mt. Wellington, and it has been recorded from Port Esperance, on the Huon, and along the East Coast near Swansea.

Yellow-throated Honeyeater (*Meliphaga flavicollis*) :—Of the indigenous *Meliphagidae*, of which there are four, the Yellow-throated Honeyeater is the most common. It is well distributed throughout the State, frequenting for the most part lightly to fairly heavily timbered areas, and shows no tendency towards migration. The general colour is light olive yellow, relieved by a conspicuous golden patch across the throat from the which bird derives its popular name. Local names for the bird are "green dick," and "green linnet." In the winter months the Yellow-throat comes to the gardens of the city and suburbs, and its different notes may be clearly defined above the noise and bustle of street traffic, while in a park it is a simple matter to attract the bird within a few yards of one by imitating its commonest note, "tchook, tchook." To the bird photographer it is a trying species. The nest is generally built a few inches from the ground, among thick herbage or long grass overshadowed by heavy trees ; the bird, except when covering the eggs, is never at rest a moment, and this perpetual movement combined with poor lighting make the possession of good pictures almost out of the question. The bird, like other members of the family, lives extensively on an insect diet as well as nectar, and the young until well after leaving the nest are fed upon small spiders and the larvae of flies secured from under the bark of trees. The nest is a small, cup-shaped structure. In some instances the bird almost entirely employs wool for the construction of the nest, which it obtains from fences where sheep have been scratching themselves, and sometimes from a skin that may be drying upon a post or shed, and so excellent is the workmanship that the finished home is a wonderful example of avian architecture. A woolen nest has the disadvantage of being conspicuous, but on the other hand it must serve to protect young and eggs from the cold in a measure not afforded by the ordinary grass nest. If sufficient wool is not available to construct the whole nest, grass and leaves are woven in the and lining is made of spiders' cocoons and a few feathers. The most elevated position in which I have found a nest has been in a bush about five feet high, while the lowest has been among rush grass with the bottom of the nest touching the ground.

Black-headed Honey-eater (*Melithreptus affinis*) :—Another indigenous member of the honeyeater family is the Black-headed Honeyeater. Frequenting both densely timbered and lightly-wooded areas, the bird is common in most parts of the State, though its numbers would appear to be greater in the south than elsewhere. It does not seek the haunts of man to the same extent as other members of the tribe, such as the Yellow-throat, the Spinebill and the New Holland, for it is but rarely observed in or about the city or towns. The nest is placed in the top of a tall tree. It is only by careful watching that the nest is discovered, and strangely enough the bird exhibits not the slighest hesitation in going to the nest when people are about. I was watching the building last year, and, although I was moving round at the base of the tree endeavouring to see how best to go about photographing one nest when it was ready, the birds flew on and off with beakfuls of grass and hair every few minutes, taking no notice of my presence. On account of its height, and the slender branches among which it is constructed, to photograph the nest of the species is a difficult task. The nest is made of bark, usually torn from the stringybark (*Eucalyptus obliqua*), which is easily torn from the trees, linings of flower seeds, some hair and fur.

Of the birds saddled with the task of bringing up the young of the Pallid Cuckoo, the Black-headed Honeyeater would appear from my observation to be imposed upon the most. Last year, within an area of 100 square yards near Hobart I discovered four nests, three of which held well-grown young of the Cuckoo and the fourth an egg of the Honeyeater. Photographs showing one of the birds feeding a young Cuckoo appeared in *The Emu*. Vol. 23, p. 194.

Strong-billed Honeyeater (*Melithreptus validirostris*) :—The Strong-billed Honeyeater is a larger and more robust bird than the previous species, though somewhat similar in appearance, having the black head, greyish back and white markings of the head, and its general economy is much the same. Its love of the densely-wooded parts of the country, such as occur on the slopes of mountains and in thick gullies, appears to render it less plentiful than the Black-headed Honeyeater, but for most of the year it associates in flocks and is plentiful in all suitable districts. On a still day in the bush a flock of these Honeyeaters creates quite an appreciable noise owing to their habit of prying off from the limbs of trees large pieces of bark in their search for food, while a short, sharp note is uttered as they feed. They work from the topmost branch to the very roots of the trees, pottering about on the ground under the scrub as well, and if the observer sits down and remains quiet he will have a number around him in no time. The top of a sapling is a favourite site for the nest, and like that of the black-head the structure is fairly deep, cup-shaped, and composed of portions of bark, grass and softer material in the shape of wool, fur or hair. From three to four eggs are laid, the breeding season being from September to December.

Yellow Wattle-bird (*Anthochaera paradoxa*) :—This large honeyeater is very common in those parts of the State suited to its habits. Nectar constitutes its chief item of diet, and in order to get this it moves about a good deal according to the fluctuating period of the flowering of the trees from which it feeds, and at certain times of the year may be seen, in company with the Brush Wattle-bird (*A. chrysoptera*) in suburban gardens and other spots close to the city. In the bush a few miles from Hobart I have noticed it feeding a few inches from the ground on the nectar of the native fuchsia (*Correa speciosa*), but it usually keeps to the tops and higher branches of the gums and wattles. Mr. Arthur Turner, residing at Saltwater River, Tasman's Peninsula, records a pair nesting in his garden last season and successfully rearing a brood. He remarks upon their comparative tameness and says they frequent the fuchsia bushes growing alongside the verandah of the house. As a game bird this species is very highly esteemed. We used to get it from Epping Forest, a large area of timbered country between the midlands and the north, where it was common, as well as from different parts of the midlands and along the east coast. In heavily-wooded places, such as the foothills of Mount Field, in National Park, the bird is seldom seen, but its very curious guttural notes indicate that it does frequent those parts as well as the more open country near the coast.

Curiously enough, though the bird likes to keep to the high trees, the situations in which it builds its nest are comparatively easy to get at, for on some occasions I have been able to reach the nest from the back of a horse, and in one instance, from the ground. The two to three eggs are mostly pink in colour, tinged with buff and sometimes spotted with brown. The Wattle-bird extends its range as far as King Island, in Bass Straits.

Hill Magpie (*Strepera arguta*) :—The "Black Magpie" as it is locally known, is restricted to Tasmania and the Bass Strait islands. The highlands are undoubtedly its stronghold, large numbers frequenting the lake district, which is really a large plateau in the centre of the State. Others, however, resort to the lowlands, even reaching the coast. Miss J. A. Fletcher, R.A.O.U., has supplied some interesting field notes on the Hill Magpie (see *The Emu*, Vol. XXII., p. 60) in which she states that the site for the nest as a rule varies each season, but is always in fairly elevated situations in the gums, some being as much as 70 feet from the ground. Four to five eggs are usually laid in a well-made nest, the breeding season being from August to December. The Hill Magpie is one of the few birds which has successfully established itself in the inhospitable regions of the west coast, the thick forests and high ranges affording the species an abundance of food and shelter. In the winter time, when the snow covers the ground, they fearlessly approach human habitation and eat any household scraps they can find. Their natural food is berries and fruit. Both this and the following species are good table birds.

Sooty Crow-shrike (*Strepera fuliginosa*) :—The "Black Jay" is common from one end of the State to the other, frequenting the uplands and the thick bush country. To many people this and the previous species are one and the same, and among others there is considerable confusion over their identification. They both live in the hills and have much in common in their nesting and economy generally ; but seen side by side, the difference so far as their outward appearance goes, is at once apparent. The Hill Magpie is much the larger bird, and is identified by the large patch of white on the wings, which it exhibits immediately it flies, and, furthermore, it has a call totally different from that of the Sooty Crow-Shrike. Black all over, with the exception of the tips of the tail and wings, which are conspicuously touched with white, the " Jay " has the habit when alighting of elevating its tail almost to the angle at which that of the *Calamanthus* is carried, and appears, like the Fan-tail Cuckoo, to do this to retain its balance. For audacity and cheek I do not think the " Black Jay " can be beaten. He makes any amount of row in the bush when hunting for food or flying from one tree to another, but when he comes round a house or a bushman's tent he is as quiet as a mouse and gives no indication of his presence. His object is to find food, and he makes off to the bush with anything he can lift—usually it is the camper's last piece of soap—and finding it unpalatable drops it wherever he happens to be. He will also take spoons, forks, or other small articles that may be left outside, and make sure they will not be found again. He hops round with a very cunning look, and if disturbed in his nefarious game flies off with mocking cries to a neighbouring tree, from which he watches with almost devilish satisfaction your futile efforts to trace the stolen articles. Although in their natural state entirely insect and berry eaters, the Hill Magpies and Jays have fallen into bad repute by raiding orchards and eating the fruit. As soon as the apples turn red a marauding band floats down silently from the tree tops and takes toll, and, like the White Cockatoos on grain, the birds take the precaution to post a sentinel while engaged in their rascally work.

The nest is similar to that of the Hill Magpie, being constructed of grass and twigs, and sometimes a few leaves. The altitude varies according to the nature of the timber. Two to four buffish blotched eggs form a clutch.

I like the call of these birds. People laugh when I tell them I find music in the weird, unbirdlike notes, but I do. It makes all the difference, I admit, under what conditions one has first heard the call of a bird and the associations it recalls. Out in the bleak mountains these may not have been the most favourable with many persons whose work or love of the unknown have taken them to those regions ; but in my case they were, and therefore I shall never cease to stop to listen to and admire their song. It is a peculiar call—a kind of half laugh, half talk, with a curious ringing quality about it, and heard out in the hills and the uplands amongst the snow-clad trees, the mountain mists and the rippling streams, it sounds particularly pleasing and seems to harmonise with the wintry conditions.

The First Report of the Committee on the Distribution and Migration of Australian Birds.

By Marc Cohn, Convener, Bendigo, Vic.

The following members have been appointed by the various States to act as a migration committee :—

Victoria : Mr. Marc Cohn ; N. S. Wales : Messrs. T. Iredale and P. A. Gilbert ; S. Australia : No appointment made yet ; W. Australia : Mr. D. L. Serventy ; Queensland : Mr. C. H. H. Jerrard : Tasmania : Mr. M. S. R. Sharland.

Members who have offered to send in quarterly reports are :—

Victoria : Mr. N. J. Favaloro (District No. 1). Mr. H. A. Purnell (No. 3), Mr. Marc Cohn (No. 2).

N.S.W. : Mr. N. W. Cayley (No. 41), Mr. B. S. Morse (No. 43) Mr. K. McKeown (No. 44), Mr. B. A. Brown (No. 45), Mr. F. McMicking (No. 46).

S. Aust. : Mr. H. H. Newell (No. 110).

Q'land : Mr. C. H. H. Jerrard (No. 81), Mrs. A. Black(No.83), Mr. W. J. Page (No. 82).

Tasmania : Mr. M. Sharland (No. 110), Mr. M. Harrison (No. 101).

W. Aust. : Mr. D. L. Serventy (No. 141).

As secretary of the Migration Committee, I wish to thank these members for their assistance.

Owing to the poor response to the call for District Correspondents, the present report will be very incomplete indeed : but everything must have a beginning.

District No. 1. includes the city of Melbourne and suburbs from the suburb of Carlton in the North to Sandringham in the South ; and from Williamstown in the West to as far as the Dandenong ranges and Ferntree Gully in the East.

In the centre of the City is situated the Botanical Gardens, which shelter a large number of birds. In the South the country is fairly flat, mostly built upon ; but some grass lands and some covered with heath, tea-tree, banksias, and a few gums. A belt of tea-tree runs along most of the shore of the bay. The West and North are built upon. The East is mountainous, covered with gums, banksias, various acacias, tea-tree, ferns, and tree-ferns.

District No. 2 includes the town of Bendigo in Victoria and the country within a radius of twenty miles. The country to the South is granitic, hilly, and cleared country with occasional patches of red gum and dead trees. The East is hilly, timbered chiefly with ironbark, stringybark, box and undergrowth of various kinds, golden wattle and other acacias predominating. The Northern section contains a few low hills but mostly flat timbered country. The West is the same but contains large areas of cleared land some of which, near the limit of the district is swampy. The Waranga Irrigation Channel and the Loddon River run through the Western section; the Campaspe through the Eastern section.

The 1924-1925 season was dry with moderate temperatures.

DISTRICT NO. 43 comprises the Mirrool Irrigation Area and surrounding districts. Mirrool is situated on the railway between Temora and Griffith in N.S.W. The district is hilly; some of it being open and cultivated and some covered with Mallee Scrub.

DISTRICT NO. 44 is fairly diversified, but is mostly plain country. A large portion is irrigated and under cultivation, mainly fruit trees and vines. The rest is uncultivated plains, and country covered with boree, myall, mallee, box, and casuarina.

The McPherson Range occurs at Griffith with a spur near Leeton.

The area under observation also covers part of the Murrumbidgee River frontage which is heavily timbered with box.

Mr. McKeown, who is stationed at Leeton on the Murrumbidgee Irrigation Area of N.S.W., has undertaken to record the movements of birds in an area extending about five miles to the East, ten miles to the South and North, and thirteen miles to the West of Leeton. The temperatures were unusually low during 1924. There was much rain in November; January and February, 1925, were mild, and March rather warmer than usual. This was probably responsible for the presence of isolated Cuckoos remaining after the others had left the district.

DISTRICT NO. 45 is a five miles radius from the town of Bathurst situated on the Macquarie River, N.S.W. It includes river flats, open plains, and is covered with scattered timber. It is sometimes swampy.

DISTRICT NO. 46 comprises Tootool and a radius of thirty miles around it. The Murrumbidgee River runs through the Northern portion from Wagga to Berrembed Weir. The country is flat, swampy in winter, and lightly timbered with box, gum, pine, sheoak, boree, and wattle. There are monsoonal rains during the Summer. The Winter rains filled the swamps during the quarter ending 30/6/25.

DISTRICT NO. 81 has as its centre Blackdown in the Burnett River district of Queensland, with Ganydah as the northern limit and Boondoona on the Boyne River as the Southern limit. About ten miles on each side of the road connecting these towns marks the Eastern and Western boundaries. It is hilly, forest country (stony or sandy), with considerable areas of brush, and patches of brigalow and softwood scrub here and there, also prickly pear. The season was unusually good and the birds nested freely. In 1924 all the Summer visitors arrived before the end of September. Several, including the Pallid Cuckoo, had remained all the Winter. This, with the early return of others, and long nesting season, appears to be attributable to a dry summer, mild Winter, and early Spring.

Silvereyes (*Zosterops*) were not seen in the district by Mr. Jerrard until 1924, in which year they appeared in great numbers in the scrubs about the end of May. They were plentiful for a couple of months and then disappeared. Their presence was coincident with the heavy fruiting of the native Bryony, on which they fed. King Parrots were often seen eating prickly pears, and the Noisy Miners were very fond of grapes. The quarter ending 31/3/25 was unusually good from an ornithologist's point of view. Grass seeds were abundant and the birds nested freely.

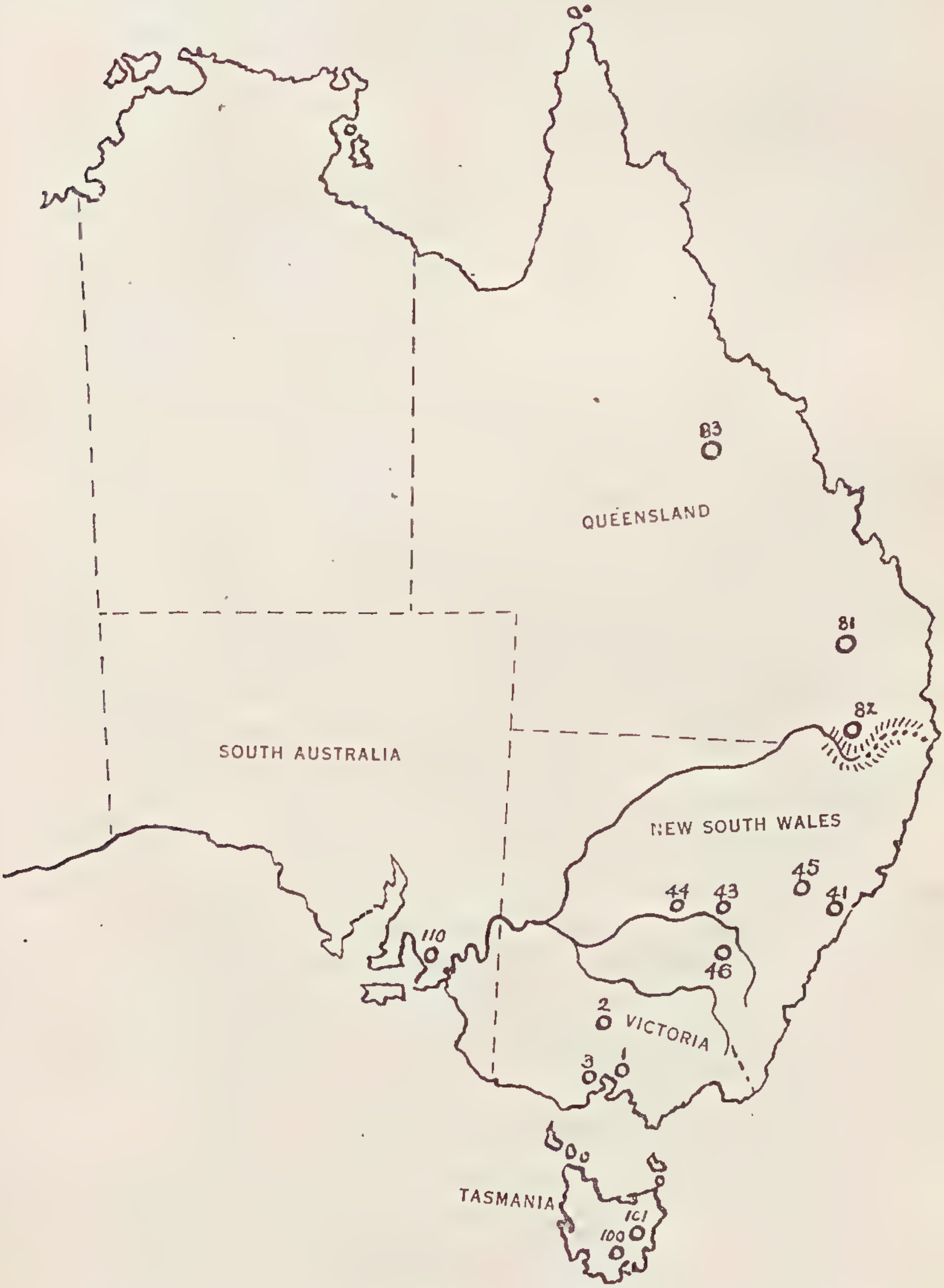
DISTRICT NO. 82 is Emu Vale in the south of Queensland, on the railway between Warwick and Killarney. This district is one hundred miles square. This is rather too large a district for one man to record satisfactorily, but if Mr. Page has opportunities for moving about there is no reason why he should not attempt it. Any information is better than none. Perhaps some other member will take portion off his hands. It is composed of a valley closed on three sides by high mountains covered with eucalypts and scrub.

DISTRICT NO. 83 has as its centre Pajingo, the cattle station of Mr. Adam Black, situated 60 miles south west of Charters Towers, North Queensland. Basalt ridges and the Great Basalt Wall run through the district. The rest is composed of black soil plains ; open timber country growing gidyea, sandal-wood, wattle scrubs, and a great variety of grasses. The 1924 season was dry ; but there were good rains in January, 1925.

DISTRICT NO. 101 is a mile radius from the township of Orford, East Coast, Tasmania. Mr. M. O. Harrison sent in a list of birds from this district, but regrets he is unable to continue the work. Is there anyone near Orford who is able to continue ? The country is mostly hilly and rocky, well timbered with eucalypts, Oyster-bay pines, and acacias.

DISTRICT NO. 110 is Hindmarsh Island, at the mouth of the River Murray. The island is composed of sand ridges, limestone hills, salt lagoons and swampy creeks. It is covered with samphire, reeds, patches of mallee, sheoak, native couchgrass, boxthorn, and tea-tree.

DISTRICT NO. 100 is a radius of 20 miles from the centre of Hobart, Tasmania. It is mountainous, and covered with thick scrub. One side of the River Derwent is semi-open, the other side is composed of lightly timbered hills.



[The bulk of the report, entitled " The birds seen in the Districts," contains a statement as to the status of every species of bird found in each of the districts enumerated above . This is obviously a valuable basis on which to record bird movements, but the number of districts is at present too small to give any fuller idea of the distribution of the species than is contained in the standard works of North and Mathews. Space does not permit of our printing this section of the the report, but we hope that many members of the Union, especially those living in the bush, will supply Mr. Cohn with particulars of the birds of their districts on forms which he will be glad to supply, and thus enable him to prepare a detailed account of the status of Australian birds in the settled parts of the Commonwealth.

We extract from the report all records of the movements of birds in 1924-5.—EDITOR.]

8. **Stubble Quail** (*Coturnix pectoralis*). Very scarce in district 46 during quarter ending 31/3/25 owing to the burning off of stubble.

16. **Little Quail** (*Turnix velox*). Very scarce in 46 during quarter ending 31/3/25.

27. **Peaceful Dove** (*Geopelia placida*). Very numerous during quarter ending 31/3/25 in district 83,

62. **Little Penguin** (*Eudyptula minor*). Four birds arrived at Middle Brighton (district 1) on about 3/7/25.

102. **Whiskered Tern** (*Chlidonias leucopareia*). Visited district 44 immediately after the November (1924) rains. A few were still there in March (1925).

133. **Double-banded Dotterel** (*Charadrius bicinctus*). Seen in district 44 during the 1924 summer, but left in February, 1925.

176. **Straw-necked Ibis** (*Threskiornis spinicollis*). Arrived in large numbers on 30/5/25 in district 46.

199. **Pied Goose** (*Anseranas semipalmata*). A flock seen flying over on 16/1/25 in district 83.

203. **Maned Goose** (*Chenonetta jubata*). Two or three dozen returned to district 46 between June 1 and 19, 1925.

207. **Chestnut-breasted Shelduck** (*Tadorna tadornoides*). One seen in Botanical Gardens in district 1 on 3/7/25.

298. **Quarrion** (*Leptolophus hollandicus*). Small flocks seen on 1/4/25 in district 81 and then all through the quarter ending 30/6/25.

320. **Paradise Parrot** (*Psephotus pulcherrimus*). Only one pair seen in district 81 in quarter ending 30/6/25.

333. **Budgerygah** (*Melopsittacus undulatus*). Two flocks seen in Sept., 1924 in district 2. Very numerous in district 44 on 20/10/24. Very scarce in district 46 in 1924, probably because the wheat was blue-stoned and Starlings occupied most of the nesting sites.

341. **Broad-billed Roller** (*Eurystomus orientalis*). Arrived in district 81 on 11/10/24 and in district 83 in October and departed from district 81 on 22/3/25 and from district 83 on 16/3/25.

347. **Forest Kingfisher** (*Halcyon macleayi*). One seen in district 81 on 4/6/25.

348. **Red-backed Kingfisher** (*Halcyon pyrrhopygius*). Appeared near the swamps in district 44 on 22/10/24.

352. **Rainbow-bird** (*Merops ornatus*). Flocks passed over district 44 on 13/10/24, but none remained to nest. They were seen in small numbers in Feb., 1925, but only stayed a few weeks.

358. **Spine-tailed Swift** (*Chaetura caudacuta*). About 3,000 seen in district 46 on 31/1/25 and about 200 on 4/2/25. Seen feeding on grasshoppers flying about 20 feet from the ground. In district 81 first flock seen on 14/12/24 and another in the last week of Feb., 1925.

359. **White-rumped Swift** (*Micropus pacificus*). A flight seen in district 110 on 3/4/25.

361. **Pallid Cuckoo** (*Cuculus Pallidus*). Arrived in large numbers in district 44 in June, 1924, and all except one had left by the end of October. This one was seen on 24/2/25. In District 81 some individuals remained all through the 1924 winter; the last one was seen on 7/1/25.

362. **Fan-tailed Cuckoo** (*Cacomantis flabelliformis*). None seen in district 81 since Dec., 1924. First seen in district 2 on 26/7/25.

366. **Narrow-billed Bronze Cuckoo** (*Chalcites basalis*). None seen in district 81 since Dec., 1924. In district 2 first pair seen this year on 28/6/25; second pair seen on 19/7/25.

368. **Bronze Cuckoo** (*Lamprococcyx plagosus*). None were seen in district 81 after Dec., 1924; began to call again about 1/6/25.

371. **Koel** (*Eudynamys orientalis*). Departed from district 81 in the middle of February, 1925.

372. **Channel-bill Cuckoo** (*Scythrops novaehollandiae*). Last heard in district 81 on 7/2/25.

384. **Welcome Swallow** (*Hirundo neoxena*). A Few were seen in district 81 on 9/3/25 and small flocks arrived during the quarter ending 30/6/25. In district 46 arrived in Feb., 1925.

386. **Tree Martin** (*Hylochelidon nigricans*). Arrived in district 46 in Feb., 1925.

387. **Fairy Martin** (*Hylochelidon areil*). Arrived in district 44 early in Sept., 1924, and left in June, 1925.

388. **Jacky Winter** (*Microeca fascinans*). Very numerous in district 46 on 2/3/25.

392. **Scarlet Robin** (*Petroica multicolor*). A few were seen in district 46 on 1/3/25. They left the district but reappeared in May.

394. **Red-capped Robin** (*Petroica goodenovii*). In district 44 a few arrived in June, 1925. A few were seen in district 46 on 1/3/25.

402. **White-throated Warbler** (*Gerygone olivacea*). Heard singing in district 81 on 19/4/25 and again on 21/6/25, but ceased a few days later. This was probably due to the early spring-like weather.

457. **Black-faced Cuckoo-shrike** (*Graucalus novaehollandiae*). First seen in district 2 this year on 24/5/25.

459. **Little Cuckoo-shrike** (*Graucalus robustus*). A flock of ten seen flying west in district 46 on 17/3/25.

462. **White-shouldered Caterpillar-eater** (*Campephaga tricolor*). Arrived in district 44 on 28/10/24, but only stayed a few days. Departed from district 81 about 7/1/25.

485. **Rufous Song-lark** (*Cinclorhamphus mathewsi*). In district 81 ceased to sing about 22/3/25 though still present; began again about the end of June.

489. **Whits-fronted Chat** (*Ephthianura albifrons*). Commenced to arrive in district 46 in January; more appeared on 28/2/25 and they were numerous on 16/3/25. The migration appeared to be complete by the end of June.

508. **Yellow-tailed Thornbill** (*Geobasileus chrysorrhous*). Ap air found nesting in district 2 on 4/7/25.

559. **White-breasted Wood-swallow** (*Artamus leucorhynchus*). Several were seen passing in district 44 on 27/10/24 and continued to do so for several days.

560. **White-browed Wood-swallow** (*Artamus superciliosus*). Several seen passing in district 44 about 27/10/24.

564. **Wood-swallow** (*Artamus cyanopterus*). Seen passing in district 44 about 27/10/24.

578. **Whiteface** (*Aphelocephala leucopsis*). A pair found nesting in district 2 on 26/7/25.

599. **Grey-backed Silvereye** (*Zosterops lateralis*). Appeared in large numbers in district 81 in May, June and July, 1924, and then left.

603. **Red-tipped Pardalote** (*Pardalotus ornatus*). None seen in district 2 in 1925.

609. **Black-headed Pardalote** (*Pardalotus melanocephalus*). Began nest building in district 82 towards the end of June, 1925, evidently owing to the very mild weather.

622. **Scarlet Honey-eater** (*Myzomela sanguineolenta*). Began to sing in district 81 about the end of June, 1925.

624. **Black Honey-eater** (*Myzomela nigra*). One individual arrived in district 2 in the Summer of 1924, but only stayed a few weeks.

651. **White-eared Honey-eater** (*Meliphaga leucotis*). One seen in district 2 on 4/7/25 in a place where one was seen two years previously. One seen in another part on 15/7/25.

656. **Yellow-plumed Honey-eater** (*Meliphaga ornato*). Seen in district 2 on 16/7/25.

696. **Chestnut-eared Finch** (*Taeniopygia castanotis*). Arrived in district 44 on 10/10/24 and left early in March, 1924.

712. **Olive-backed Oriole** (*Oriolus sagittatus*). Arrived in district 2 in May, 1925.

It is practically impossible adequately to record the movements of all the migratory and semi-migratory birds, so, it has been suggested to me that the district correspondents pay particular attention to about twenty birds, increasing the number from time to time. While continuing to record the movements of *all* birds, if we give the following ones particular attention some good results should follow. I have left out the sea birds until we have more coastal correspondents.

BIRDS TO BE SPECIALLY NOTED.

The Sacred Kingfisher.
  ,, Australian Bee-eater.
  ,, Spine-tailed Swift.
  ,, Welcome Swallow.
  ,, Fairy Martin.
  ,, Black-faced Cuckoo-shrike.
  ,, White-shouldered Caterpillar-eater.
  ,, Australian Reed-warbler.
All the Wood-swallows.
    ,, Cuckoos.
    ,, Robins.

We badly need more correspondents, as members will see by the map. An hour or two once in three months is all the time that is necessary to write up what one sees in the bird world during the quarter. If you have no news, we are no worse off; but if you have let us put you on the map. Continuous information is the best, but intermittent news is useful.

A New bird for the Australian List? In the *Australian Zoologist*, Vol. IV., p. 16, Mr. A. F. Basset Hull, ex-President R.A.O.U. writing of a visit paid by him to Booby Island, about 20 miles west of Thursday Island, Torres Strait, in June, 1924, states:—

" In a rift in the rock there are a few *Ficus* trees, and from one of them a large bird was flushed. It was light, almost white, in colour, bluish on the head and back, and had a long tail. Mr. Norgate, the lighthouse-keeper, told me that it was a New Guinea Pheasant, and was not uncommonly seen passing over from New Guinea to the mainland. It was evidently one of the large Pheasant Coucals of New Guinea, but no specimen has been recorded as taken in Australia."

The description given agrees much better with that of a Channelbill (*Scythrops novaehollandiae*) than with any known species of Pheasant Coucal. It is true there are Pheasant Coucals in the New Guinea region partly white in plumage, but these are confined to the Moluccas, New Ireland and the Solomon Islands. It is surely most improbable that a large bird " not uncommonly seen " migrating to Cape York should never have been obtained by the numerous ornithologists who have collected there . The fact that the bird was seen to fly out of a fig-tree also strongly suggests that it was a Channelbill, as these birds are so partial to figs and fig-trees that it is unusual to see them in any other kind of tree in localities where fig-trees are growing.—W. B. ALEXANDER.

A Review of the Australian Members of the Genus *Zosterops.*

BY EDWIN ASHBY, F.L.S., C.F.A.O.U., &c.

A YEAR ago the writer drafted a short paper on the above subject for publication in *The Emu*, but at the suggestion of Dr. Leach and Mr. A. J. Campbell it was thought desirable to delay the matter until the skins belonging to the National Museum, Melbourne, were examined. This has now become possible owing to the kindness of Mr. J. A. Kershaw and the authorities of the National Museum, who have loaned the skins in their collection for the purposes of this examination. Altogether 98 skins of Australian *Zosterops* have thus been assembled together in the South Australian Museum, being those in the S.A. Museum, the Nat. Museum of Victoria, Mr. Parsons' and the writer's collections, as is recorded in the tables annexed hereto.

I will now quote from the first paragraph of the earlier draft. The writer has for more than 20 years maintained that the yellow-throated white-eye, which he had met with in southern Queensland and New South Wales was a well defined species easily separable from the *Zosterops*, Common in Victoria, Tasmania and South Australia. He has now in conjunction with Dr. Morgan, Messrs. McGilp, Parsons and Sutton, made a daylight comparison of the long series of skins in the State Museum, supplemented with skins fron his own collection. All agreed with the writer in his opinion.

Now, a year later, has come the collection of 27 skins from Melbourne and 5 skins from Mr. Parsons' collection, making an important addition of 32 skins. The writer, on opening the parcel from Melbourne proceeded to sort out the 98 skins into their respective species without reference to localities and names. I do not think it took more than ten minutes to have them thus arranged and it matters not to what extent they may be re-shuffled, a few minutes is sufficient to accurately re-arrange them according to their specific characers. One is compelled to admit that much information as to the true limits of their respective habitats and extent of seasonal variation, needs still to be ascertained, but this at least has been gained as a result of this investigation, viz., that the complexity of nomenclature hitherto existing in collections will be straightened.

AUSTRALIAN *ZOSTEROPS* COMPARED.

Z. lutea, Gould, 1843. Under surface yellow, upper surface pale-green, forehead yellow, orbital-ring white, shaded below with black. Type from Van Dieman's Gulf, Northern Territory.

Z. albiventris, Reich, 1852. Throat and under tail coverts yellow, rest of under-surface buffish-grey, upper-surface green to yellow-ish green on crown, forehead yellow, orbital-ring white shaded below with black. Type from Islands North Queensland.

Z. gouldi, Bonap, 1850. Throat and under tail coverts yellow with tinge of green, breast grey, abdomen and flanks buffish-grey, upper-surface green, orbital-ring white shaded below with black. Type from Western Australia (? Perth).

Z. lateralis, Latham, 1801. Throat and under tail coverts yellow (brighter than in *gouldi*), rest of under-surface grey, with buff flanks in the single Bondi specimen, crown, forehead and nape bright green, mantle grey, lower-back and upper rail coverts bright green, lores sometimes blackish, orbital-ring white shaded with black below. Type from New South Wales (Sydney).

Z. westernensis, Quoy and Gaimard, 1830. Throat and under tail coverts grey lightly washed with green (in some examples throat ertirely grey and in the brightest the centre only grey), breast and abdomen grey, flanks varying from buffish to rufous, forehead, crown abdomen grey, flanks varying from buffish to rufous, forehead, crown, nape, lower-back and upper tail coverts green, darker than in *lateralis*, mantle grey, orbital-ring white, lower orbital-ring and lores black. Type from Western Port, Victoria.

Z. tenuirostris, Gould. Description of skin in Ashby's collection Throat dull yellowish-green, neck, breast and under tail coverts brownish-green, centre of abdomen pale brown, sides and flank brown but paler than mantle, forehead, crown, nape, lower back and upper tail coverts olive-green, mantle (according to Gould dark vinaceus-brown), dark seal-brown (Ridgway xxxix.) beak large, length of skin 5 in. Type from Norfolk Island.

TABLE OF SKINS EXAMINED.

Species	Collection	Locality	Date	Sex
Z. lutea (tribulationis)	S.A. Mus.	topotype King Sound	14/6/13	♂
” ”	”	” ”	”	♀
” ”	”	” ”	”	♂
” ”	”	” ”	”	♀
” ”	Nat. Mus.	” ”	26/8/1910	—
Z. lutea	”	West. Austr.	16/8/1900	—
”	Ashby	Anson Bay, N. Ter.		—
”	S.A. Mus.	Port Darwin, N. Ter.		♀
”	”	”	24/9/13	♀
”	”	Bathurst I.	15/10/13	♂
”	”	” ”	”	—
”	Ashby	Melville I.	6/11/1911	♂
” *montebelloensis*	”	Monte Bello Is., W.A.	14/8/1912	♀
Z. albiventris	Nat. Mus.	N. Queensland	26/1/1911	—
”	”	Forbes I., N. Queens.	Feb. 1914	♀
”	”	Haggerstone I., N.Q.	”	♀
”	S.A. Mus.	no data		—
Z. gouldi	Nat. Mus.	W.A.?if from Gould	1858/1859 no data	—
”	”	West Austr.	Apl. 1874 no data	—
”	”	”	” no data	—
”	”	”	17/8/1883 no data	—
”	”	”	May 1890 no data	—

Species	Collection	Locality	Date	Sex
Z. gouldi	Nat. Mus.	West Austr.	no data	—
"	"	"	17/8/1883	—
			no data	
"	S.A. Mus.	"	no data	—
"	Nat. Mus	Gordon River, W.A.	9/2/1889	♂
"	"	"	"	♀
"	Ashby		no data	—
"	"	Claremont, W.A.	20/10/1920	♀
"	"	Guildford, W.A.	August 1901	♂
"	Nat. Mus.	"	8/11/1905	♂
"	"	"	"	♀
"	Parsons	Mundaring, W.A.	25/9/1922	♂
"	"	Bunbury, W.A.	11/10 1922	♀
"	S.A. Mus.	Williams, W.A.	Apl. 1920	♂
"	"	"	"	♂
"	Ashby	Geraldton, W.A.	6/11/1920	♂
"	S.A. Mus.	Abrolhos Is., W.A.	13/12/1912	♀
"	"	"	"	—
"	"	"	14/12/1912	—
"	"	"	16/12/1912	♀
"	"	Warren Riv., S.W.A.	5/10/1912	♀
"	"	"	18/10/1912	♂
Z. lateralis	Nat. Mus.	North Queensland	26/1/1911	—
"	"	Queensland	15/5/1886	—
"	S.A. Mus.	Coen River, N.Q.	17/1/1914	♂
"	"	Barron Riv., Queens.	22/5/1911	♀
"	"	"	"	♂
"	Ashby	Blackall Range	27/9/1903	—
"	"	Mallanganee, N S.W.	12/11/1912	♀
"	"	Bulli, N.S.W.	5/10/1915	—
Z. westernensis	S.A. Mus.	Laura, S.A.	1894	—
"	Ashby	Saddleworth, S.A.	19/5/1904	♂
"	"	"	"	♀
"	S.A. Mus.	South Aust.	no data	—
"	"	Mt. Compass, S.A.	"	—
"	Ashby	Blackwood, S.A.	22/3/1915	♀
"	"	"	8/4/1911	—
"	Parsons	Adelaide, S.A.	June 1916	♂
"	"	"	6/1/1918	♂
"	"	"	13/2/1917	♂
"	S.A. Mus.	Mitcham, S.A.	9/12/1912	♂
"	"	"		♀
"	"	Fulham, S.A.	31/5/1915	♂
"	"	"	"	♀
"	"	Kings Park, S.A.	24/5/1914	♂
"	Ashby	Henley Beach, S.A.	30/8/1901	♂
"	S.A. Mus.	St. Kilda, S.A.	3/9/1917	♀
"	"	Port Lincoln, S.A.	30/12/1918	♂
"	"	Coffins Bay, S.A.	13/1/1925	♀
" (insular forms)	S.A. Mus.	Pearson I., S.A.	11/1/1923	♂
" "	"	Flinders I., S.A.	6/1/1924	♂
" "	"	"	"	♀
" "	"	"	7/1 1924	♀
" "	S.A. Mus.	Kangaroo I., S.A.	17/4/1912	♀
" "	"	"	"	♂
" "	Ashby	"	2/5/1913	—
" no data	S.A. Mus.			—
" "	"			—
"	"	Launceston, Tas.	3/6/1902	—
"	"	"	4/12/1909	♀
"	"	"	3/6/1902	—

Species	Collection	Locality	Date	Sex
Z. westernensis	S.A. Mus.	Underwood, Tas.	27/6/1910	♂
,,	,,	,,	,,	♀
,,	Ashby	Mt. Wellington, Tas,	8/1/1913	♀
,,	Nat. Mus.	Tasmania	no data	—
,,	,,	,,	,,	—
,,	,,	,,	,,	—
,,	,,	,,	,,	—
,,	S.A. Mus.	,,	,,	♂
,,	Ashby	Ballarat, Victoria	,,	—
,,	Nat. Mus.	Victoria	4/7/1904	♀
,,	,,	,,	,,	♀
,,	,,	North Fitzroy, Vict.	21/4/1911	♀
,,	,,	Melbourne	no data	—
,,	,,	,,	,,	—
,,	Ashby	,,	,,	—
Z. tenuirostris	Ashby	Norfolk Island ?	19/5/1903	♂

No apology is needed for presenting the above table of specimens, with particulars of data attached, for the accuracy of scientific determination is always dependent on the data supplied.

Also this list supplies the information for future workers as to where the skins referred to are to be found.

To show the importance of writers on scientific subjects supplying accurate data, I will cite by way of example some very interesting notes by H. Stuart Dove on " Some rare Birds in Tasmania," *The Emu*, Vol. 24, p. 280. He there quotes Littler's record of *Neophema chrysogaster* in North Island and his own observation of the same species at Devonport on 5th August, 1918. Now neither of these observations were apparently supported by skins, without which it is impossible to determine to which of the two Tasmanian species of *Neophema* these two small flocks belonged.

I have noticed in several recent contributions to the same magazine, observations that are valuable as suggestive notes. But if these assumed occurrences are to be quoted as scientific facts, a sad disservice will be done to the accurate study of Ornithology. Many familiar birds may be accurately determined as to the species, with the aid of a good field glass, but there are a very large number of Australian species that cannot be so determined. Racial differences or sub-species cannot be determined with accuracy without the handling of skins.

SHORT KEYS TO SPECIES OF AUSTRALIAN *ZOSTEROPS.*

Throat yellow. *Lutea, albiventris, lateralis, gouldi.*

Throat grey washed with green. *Westernensis.*

Mantle green. *Lutea, albiventris, gouldi.*

Mantle grey. *Lateralis, westernensis.*

Forehead yellow. *Lutea ,albiventris.*

NOTE.—Mathews in " Birds of Australia," Vol. XI., Pt. 3, p. 162, in his description of *Z. albiventris*, from Cairncross Island, does not mention the yellow forehead which is a very distinctive feature of the adult bird ; I suggest that his description is founded on an immature bird upon which, he at first, founded his sub-species *gairncrossi*, but later prefers to adopt the safer course and refer all specimens to the one form. I am inclined to think that the skin in S.A. Mus. is a juv. of this. Mathews quotes Macgillivray as stating that he obtained his first specimens on the Forbes Group, then saw them in numbers on Haggerstone I., and again in a number of islands in the Torres Straits. I note that two of the specimens included in this examination came respectively from Forbes I. and Haggerstone I. and must certainly be considered typical birds.

NOTES ON SOME OF THE SUB-SPECIES OF AUSTRALIAN *ZOSTEROPS*.

Z. lutea montebelloensis. Description of a skin from Monte Bello Is., West. Austr. in collection of writer. Under surface of female pale greyish yellow, upper surface greenish-grey, otherwise similar to *Z. lutea*.

The above skin differs distinctly from any of the skins under review and while one does not desire to multiply sub-specific names, especially on a single skin, the fact remains that the above skin does not correspond with any of Mathews' sub-species, all of which, with the exception of *hecla*, are mainland birds and *hecla* is evidently a highly coloured one. Mathews states that his *tribulationis* is paler than *balstoni* of Grant, from Carnarvon. The type of the former came from Point Torment, King Sound, and I have before me five topotypes including two females. All these are nearer to typical *lutea* than is the skin under discussion, I therefore conclude that the bird under examination is a distinct insular form ; if this is supported by evidence adduced from additional material, I suggest that it should then be known under the name I have provisionally adopted above.

Z. lateralis tephropleura, Gould, 1855. The original description is as follows. " Is a larger bird than *Z. dorsalis*, 4¾in. Head and upper surface bright olive green, with a wash of grey across the shoulder, throat dull-yellow, wings and tail slaty-brown, margined with olive-green." From the description I consider this to be a sub-species of the mainland bird of New South Wales and Queensland, *Z. lateralis*, but it appears to differ in the following points. *Lateralis* has a grey mantle, not ' green with wash of grey,' *lateralis* has throat bright yellow, not ' dull yellow,' *lateralis* has wings, tail and upper tail coverts, bright yellowish-green, not ' olive-green.' The type locality while given as Lord Howe I. is considered to be the Capricorn Group. It is interesting to note that in this paper I also describe skins from certain islands off the coast of South Australia, in which the mantle is ' washed with green ' and not the normal grey of the mainland bird, *westernensis*. These facts seem more than a coincidence. Are the two mainland species with a grey mantle derived from a green mantle type or are these insular forms the result of ecological factors ?

Z. westernensis halmaturina, Campbell. In the description of the type we read " The Kangaroo Island bird has grey back, greyish flanks and yellowish upper throat." Mr. Campbell then considered that the mainland bird had chestnut flanks whereas the mainland bird has both forms, apparently due to seasonal change of one of the sexes. Thus the only character mentioned that really was distinctive from the mainland bird, was that of the ' yellow upper throat.'

In the *South Australian Ornithologist* Vol. II., Pt. 3, p. 62, 1915, the Editorial Committee state " The Kangaroo Island (bird) does not differ in any respect," they describe throat " greyish-white washed with yellowish green." I have not seen a skin from Kangaroo Island with the " upper throat yellow," and in this respect endorse the quotation from the *S.A. Ornithologist*. The two skins male and female from Buchmore's Lagoon, K.I., dated 17/4/1912, are typical *westernensis* and do not differ in anywise from the mainland birds, but the skin in my own collection from Middle River, K.I., dated 2/5/1913, has a very distinct wash of green over the whole of mantle and back, a feature that seems to have been absent in the skins described by Campbell and shows a distinct affinity with *Z. gouldi* the Western Australian bird.

In the collection of the S.A. Museum are three skins from Flinders I., South Australia, and one from Pearson I. One skin is imperfect, one a female, dated 7/1/24 has lighter-grey mantle than *westernensis* silver-grey breast but no green on mantle. The male from Pearson I. is similar and is dated 11/1/23. But then comes the remarkable fact that the remaining skin from Flinders I. has exactly the same green-washed mantle and back as my skin from Kangaroo Island, and in addition has the yellow throat of *gouldi* thus showing a further advance towards typical *gouldi* than does the Middle River skin. We have therefore established the fact that there exists an insular race that appears to link up *westernensis* with *gouldi* or at least shows a strong affinity with it. Are we to consider that there are two races existent in Kangaroo Island and extending westward into the islands in the Great Bight, or at least one of them doing so, or are we to accept the name of *halmaturina* as a purely geographical name including the normal *westernensis* and the green backed form as well ? When I commenced typing out this paper I thought of recommending this course, but having reached thus far, I now feel such a course cannot be really satisfactory.

If a re-examination of Mr. Campbell's type of *halmaturina* does not establish the fact that it possesses the yellow throat of *gouldi*, then I think *halmaturina* must, as stated in the *S.A. Ornithologist*, be considered a synonym of *westernensis*. Should it be found necessary to adopt such a course, then I suggest that the skin from Flinders I., S.A., now in the South Australian Museum, a male dated 11/1/25 with a wash of green over the mantle and a yellow throat, be considered the holotype of a sub-species of *westernensis* known as *flindersensis*, and I should link with this sub-species the skin from Kangaroo I. with the wash of green over the mantle and dated 2/5/1913 from Middle River this skin becoming a paratype of that sub-species.

I am fully aware that a great deal of work remains to be done before the problems raised by the discovery of these green backed insular forms is fully elucidated. Are they recessives as suggested in an earlier note on the insular forms on the eastern coast of Australia : are they hybrids, the result of irruptions of *westernensis* from the mainland, which almost certainly do occur or have occurred ; or are these *flindersensis* birds, the out-lyers of the western *gouldi*, representing the extreme limit of its range in that direction, which in these islands is overlapped by *westernensis*. Such a conclusion would make it necessary to identify *flindersensis* with *gouldi*, considering it a sub-species thereof. The solution of this and numberless other kindred problems will only be solved when Australia wakes up and encourages the breeding of trained, working ornithologists, who of necessity must be collectors.

Z. albiventris? In the South Austr. Museum is a skin labelled *albiventris*, without any data. It differs from *albiventris* in having the forehead green, not yellow, the whole upper surface is uniformly green, lores, ear coverts and lower orbital ring dark, tail very short. It may be an immature bird, the yellow forehead is probably only attained when maturity is reached, the dark ear-coverts being lost at the same period of development; this of course is only surmise for this skin without data may be extralimital.

ADDENDA.

North in "Nest and eggs of birds found Breeding in Australia and Tasmania," Vol. II., p. 210, discusses the Summer and Winter plumage of the species of *Zosterops* which is found in New South Wales. He claimed that all birds possess the yellow throat during the summer months, but that during the winter months "the throat is ashy and flanks deep tawny-buff," and "by the middle of October not a bird is to be seen (with these)." The only example from that State that I have seen with 'deep tawny-buff flanks' is the specimen collected by myself at Bulli on 5th October, 1915, but that has the typical yellow throat and I have seen no skin from New South Wales with 'ashy throat.' I did not refer to North's discussion on seasonal changes, above quoted, in the body of the paper because they seemed inconclusive, and instead, contented myself with stating "the true limits of their respective habitats and extent of seasonal variation, needs still to be ascertained." My friend, Mr. A. J. Campbell, thinks that there should be some reference to North's notes thereon, so I have included them in these addenda. I omitted to state earlier that in October, 1915, while taking no skins, the writter was able to observe a number of *Zosterops* at close range, while they were feeding in the Botanic Gardens, Sydney, and all the birds observed had the typical yellow throat of *Z. lateralis.* Latham's name *lateralis* and Quoy and Giamard's name *westernensis* have both been adopted on geographical grounds only, the holotypes having come from New South Wales and Western Port, Victoria, respectively; one cannot rely with any certainty on coloured plates. It is probable that the 'deep tawny-buff' coloration of the flanks, is a winter phase of several of the Australian species, it certainly seems to be so of *westernensis.*

SYNONYMY.

Zosterops lateralis
Sylvia lateralis, Latham, 1801 (Sydney), N.S.W.
Zosterops dorsalis Vig. and Hors., 1827 (Sydney), N.S.W.
,, *australis, nom. nudum.*
,, *coerulescens*, Auct., not *Certhia coerulescens*, Latham.
,, *ramsayi*, Masters, 1875, Palm I., Torres Strait.
,, *westernensis vegeta*, Hartert, 1899.
,, *lateralis cornwalli*, Mat., 1912, Mackay, Q.
,, *tephropleura*, Gould, 1855, Capricorn Is., a sub-species.
,, *chlorocephalus*, Campbell and White, *syn.* of *tephropleura*

Zosterops westernensis
Dacnis westernensis, Quoy and Gaimard, 1830, Western Port, Vict.
Zosterops halmaturina, Campbell, 1906, Kangaroo I., S.A.
,, *bowiae*, Horne, 1907, Morang, Victoria.
,, *lateralis tasmanica*, Mat., 1912, Tasmania.

Locality of type to be determined before deciding whether names are available for the southern bird.

Zosterops coerulescens, Strickland, Ann. Mag. Nat. Hist., Vol. XI., p. 336, 1843, not *Certhia coerulescens*.
,, *vegeta*, North, 1907, Aust., Mus. Spec. Cat., No. 1, Vol. II., p. 212, 1907.

COMMENTS.

There is no doubt that Quoy and Gaimard's figure of *westernensis* is coloured with a yellow throat and therefore, if correctly so, it could not be the skin they had taken at Western Port and which they intended to describe. This contention is further supported by the fact that the skin they intended to describe was taken on 29th June, at which season North contends even the yellow-throated species of N.S.W. and Q. is in winter plumage without the yellow throat. I therefore conclude either the bird figured was not the bird obtained at Western Port or the artist was very careless with his colours.

Should we choose to conclude that Quoy and Gaimard unintentionally both described and figured one of their northern skins (we have no knowledge of their having obtained such) then we shall have to treat *westernensis* as a syn. of *lateralis*, and adopt another name.

Our choice seems to be between *coerulescens*, Strickland, or *halmaturina*, Campbell, the former of 1843 and the latter 1906, but was Strickland referring to the southern bird or to the northern one? The fact that he thought that he was referring to Latham's *Certhia coerulescens*, does not according to some opinions of the meaning of the International Rules invalidate the adoption of his name.

Stray Feathers

Wedge-tailed Eagles destroying Lambs.—I recently paid a visit to the Lake Frome District in the far north of South Australia. During my trip I had conversations with many stock breeders and many assured me that they had suffered loss from Eagle Hawks.

When up at Moolamatana in March last, a few Eagles were seen, but I am informed that during April and May they came along in mobs. As far south as Hawker many more Eagles than usual were present.

In the Lake Frome District as many as 300 Eagles have been destroyed, and I saw so many alive that I gave orders that more attention to poisoning should be given.

On two occasions I saw Eagles attacking strong lambs that but for my arrival would have been killed by the Eagles. Let me instance ; When riding through a stock paddock containing ewes and lambs, I observed five Eagles diving down on to a lamb that they were driving from its mother. The Eagles took it in turn to dive and strike with the claws at the lamb. I rode up and found the lamb so torn about the shoulders, neck and back that I decided to destroy it and poison the carcase. Result, eleven dead Eagles close to where the poisoned carcase was left, but only the shank bones of the legs and skin, turned inside out, remained.

A week later I saw four or five Eagles (I am not quite sure of the number) attacking a lamb that was staggering along. Before I got up to it the lamb was struck to earth, where I found it, greatly torn from head to tail, with great gashes on flank and shoulder and in such a state that its end was near. I also poisoned this lamb and an hour later got four dead Eagles. In both cases the lambs were strong and from appearance about a month old.

As mentioned above, I do not know where so many Eagles came from, but I do know where they are going. From past experience I know it is impossible to keep Eagles and lambs.

Rabbits are fairly scarce with us, previous droughts and constant destruction by poison having almost cleared them out.

I asked some of the breeders of lambs to write to the press about the Eagle Hawk pest, but the reply was, " We don't want to let those bird cranks know about our slaughter or they will protect them ; they don't know what we have to put up with," or words to that effect. As one of the " bird cranks," I think it necessary that I write this experience. Perhaps other members can give their experience, as Eagles, though destructive in one part of Australia, may not be a pest in other parts. Opinions of members who live where these birds are plentiful would be valuable.—J. NEIL McGILP, King's Park, S.A.

* * *

Wilson Storm-Petrels (*Oceanites oceanicus*) **on the Queensland Coast.**—On May 17, 1925, a small party of Petrels was observed by me flying to and fro across the wake of the steamer on which I was travelling from Brisbane to Port Alma throughout the afternoon. We were at the time within sight of the Bunker Islands, the most southerly islets of the Capricorn Group. The birds were undoubtedly *Oceanites oceanicus*, easily recognised by their dark plumage, only the upper and under tail-coverts being white. None of them showed the white band on the wings, formed by the white tips of the greater coverts, which is a conspicuous feature in freshly moulted birds. Though the Wilson Storm-Petrel is said to be common in Tasmanian Seas, there are few records of its occurrence in Australian waters, and as far as I can ascertain there is only one previous record from Queensland, though I have already expressed the opinion (*Emu*, XXI., p. 262) that the Storm-Petrels seen by Mr. McLennan near Cape York in July, 1921, were probably of this species, as he himself supposed. The previous record to which I refer is a specimen in the Macleay Museum collected 25 miles off Port Bowen on 27th May, 1875, almost exactly 50 years earlier than the day on which I observed them.—W. B. ALEXANDER.

* * *

The Spotted Nightjar in coastal New South Wales.—One of the rarest birds which the writer, during a long experience has met with on the far South Coast of New South Wales is the Spotted Nightjar (*Eurostopodus guttatus*), which occurred but once, and then the discovery was due to a marauding cat, which proudly brought in one of these beautiful birds.

The White-throated Nightjar (*Eurostopodus mystacalis*) although not a common bird, can usually be flushed on the saddles of the barren desolate coastal ranges, in the vicinity of which the rarer variety also occurred.

I have several times found the single handsome egg of this Nightjar, boldly marked with black or very dark brown on a ground of cream colour, lying on the bare ground with even less pretence at a nest than the very slight hollow employed by the Southern Stone-Plover—in fact, the spot where the egg lies is merely cleared of debris. It was interesting to watch the bird squatting, still as death and with closed eyes, on its treasure. Although on the whole very silent birds, one White-throated Nightjar, which I flushed from its egg, perched on a fallen tree near by and for several minutes uttered its melancholy and sepulchral call ; most, however, when thus disturbed, flitted silently away.

These useful insectivorous and quite harmless birds are often styled "Night Hawks," and wrongfully accused of preying on smaller members of their race. Another and more appropriate bush name is "Ghost Bird," for a Nightjar, when flushed by day, does rise spirit-like at one's very feet.—H. V. EDWARDS, R.A.O.U., Bega, N. S. Wales.

* * *

Results of the R.A.O.U. Excursions to Yeppoon and Byfield. As was recorded in *The Emu*, Vol. XXIV., p. 221, several leading entomologists took part in this excursion, and in an article entitled

"The Lepidoptera of Yeppoon," published in the *Australian Zoologist*, Vol. IV., pp. 17-23, Dr. A. Jefferis Turner gives a list of the butterflies and moths collected on that occasion. It is gratifying to know that as many as 407 species were met with and that the indefatigable labours of the entomological members of the party have resulted in a list which its author states "is of some scientific value." The objects of the entomologists as set out by Dr. Turner were so similar to those of the ornithologists who arranged the expedition that it will be worth quoting these before giving Dr. Turner's conclusions and comparing them with those of the ornithologists already recorded in these pages in articles by Messrs. Chisholm and Wolstenholme. Dr. Turner says: "In Queensland the lepidopterous fauna of the coastal strip from the Tweed River to Gympie is fairly well-known . . .we may term this the Brisbane fauna. Next to this we know most of the fauna of the coastal district around Cairns . . . In the central district we know many species from Duaringa, from the work of the late Mr. George Barnard and his sons, but have with hardly an exception no records from the coastal district." [If we substitute "avifauna" for "lepidopterous fauna" in these sentences it will be almost equally true.] "We wished to know whether the coastal district of Central Queensland had any peculiar endemic fauna. So far as the species attached to the forest areas are concerned, this was scarcely possible, for the forest presents an unbroken area throughout the Queensland coast. The case is different with the species attached to the jungle. It is a perfectly accurate statement, that the Queensland coastal district consists of a sea of Australian forest dotted with islands of Indo Malayan jungle, and whether the jungle presented gradual transition in its fauna from south to north was an open question. We also wished to establish the relationships of what we may call the Yeppoon fauna to the Brisbane and Cairns faunas.

"To the first question we can give an unequivocal answer . . . The Yeppoon fauna is not peculiar, but consists of a mixture of the Brisbane and Cairns faunas. The presence of the latter was very evident; a large number of species . . . . find in Yeppoon their most southerly record. Many of these species were both conspicuous and abundant. Yeppoon is probably the limit of the range of many of them, though we must acknowledge that stragglers at any rate may yet be found further south . . . Many species also find in Yeppoon their most northern record, but in this instance it is much less probable that it is their real northern limit."

In Dr. Turner's list 41 species, or almost exactly 10 per cent., are marked as reaching their southern limit at Yeppoon.

Omitting sea-birds, water-fowl and migratory waders, about 110 species of land birds were seen in the Yeppoon-Byfield district, and of these 7 do not occur as far south as the Brisbane district. The proportion of northern forms among the lepidoptera and the land birds is therefore somewhat similar.

On the other hand, all the land birds met with in the district are known to occur further north, so that, if Dr. Turner is correct in thinking that further collecting will show that the lepidoptera of southern types not yet known from further north, do actually extend there, then the two groups agree in this respect also.—W. B. Alexander.

* * *

Black-breasted Quail (*Turnix melanogaster*) **in the Burnett district, Queensland.** Looking through Messrs. Barnard Bros.' interesting and valuable paper on the "Birds of Coomooboolaroo," published in the April *Emu*, I notice that the Black-breasted Quail (*Turnix melanogaster*) is stated to have disappeared from that locality at least 25 years ago. From other sources, also, I learn that this member of the Quail tribe is considered to have virtually "passed out." It seems worth while, therefore, to record the fact that I saw a bevy on July 10th, 1924. Walking at the edge of a patch of softwood and bottle-tree scrub I heard a call very like that of the Painted Quail, but not so loud; Oo-oom, oo-oom, oo-oom. Walking quietly, I soon came on three or four Black-breasted Quail feeding on the ground in the scrub. I could not see them all at once, as the undergrowth was thick, but, as one or other of them moved across the open spaces, I saw them plainly at a distance of not many yards. With my field-glasses I made out their markings very easily. All seemed to be of the same size, and all had the white spotted black breast, the black crown, and white eye. The last mentioned feature I have not seen in any of the bird-book descriptions, but noted it particularly in the birds I saw. In addition to the call I have described, they often uttered a little clucking noise like poultry. They fed quietly in one spot, while I watched them, for fifteen minutes or more, but were eventually disturbed by the approach of another person. I have visited the spot many times since but have not repeated my luck of that day. I have hoped to find a nest, but if that hope is unrealized I have at least proved the existence of *Turnix melanogaster* here.—C. H. H. Jerrard, Blacktown, Gayndah, Q'land.

[Mr. Jerrard is to be congratulated on his discovery of a second Queensland bird which it was feared had become extinct. Readers of the *Emu* will recall that it was he who rediscovered the Paradise Parrot (*Emu* XXII., p. 9.) We hope he will ultimately be fortunate enough to secure photographs of the Black-breasted Quail as good as those he obtained of the Paradise Parrot. It is a curious fact that these two birds should be surviving in the very district in which that remarkable survivor from ancient times, the Lung-fish (*Ceratodus*), still exists.—Editor.]

* * *

Birds and Motor Cars.—Last month, while travelling home from Gosford (Northern Line, N.S.W.) to Somersby, an orcharding district a few miles out of the township, a Boobook Owl was seen perched on a fence post a little way ahead of the car. As the car drew level with the post, the Owl attempted to fly across the road but was evidently dazzled by the lights, and struck the radiator. As we were doing about 25 miles an hour, it was some distance before the car was pulled up. Just as we were on the point of getting out to go back and pick up the dead bird, there was a flutter in front of the car, and we looked up in time to see the Boobook flying off into the bush.

The bird had evidently clutched the radiator and its claws getting caught in the holes, it was unable to free itself until the speed was slackened. It did not seem to be affected much by its adventure, as it flew away quite strongly.

A friend of mine, driving an Oldsmobile car, had just taken some people out to their home at Erina, a few miles east of Gosford, and was coming down a very steep hill, keeping the engine in second gear owing to the steep incline. He was about half way down when suddenly a Hawk (what species of course is not known) chasing a small bird swooped through the car striking the driver in the face with its wings. The sudden blow made him put both his hands to his face, and at the same time his foot pressed the accelerator down hard. The car crashed off the road, fell over an embankment and rolled over and over, hitting large rocks and trees as it went until finally it came to rest against a large blackbutt one hundred and ninety feet down the gully. The driver escaped severe injury and only suffered from a few bruises and shock. How he got out he can not explain, but was thrown clear, evidently before the car had gone more than 50 feet. The car, of course, was damaged considerably, the wheels being broken and the body-work smashed, but the engine itself was not much damaged. I have heard of birds entering a house when chased by Hawks, but this is the first case of its kind that I ever heard of. Has any member ever known of a similar occurrence ?—A. F. D'OMBRAIN, Somersby, *via* Gosford.

* * *

Noddy Terns (*Anous stolidus*) resting on the water.—While cruising early in June, 1925, in the Pumice Stone Passage, Moreton Bay (the sheet of water that lies between Bribie Island and the mainland) I noticed three unusual birds resting on the water directly ahead. They were wonderfully buoyant and graceful, and allowed us to motor within a yard or two of them before they rose—then circled round us, and again rested on the water directly in the boat's course. I gave the tiller to my daughter, and went forward to observe more closely. The birds were *Anous stolidus*, but their heads were more grey than the "mouldy white," described in Campbell's *Nests and Eggs*. The bodies were rich chocolate brown, merging into grey at the throat, still lighter grey on the head. The boat was steered straight at the birds, and we were within a foot of them when they again rose. I could quite easily have touched them by leaning over the bows. Though they watched us closely as we approached, the noise of our engine did not worry them. I wondered if the birds were deaf;

they seemed so insensible to the noise we made. For the third time, they dropped to the water, and stayed on it—more graceful than any bird I have ever seen—until we lost them in the distance. They were not fishing—just resting on the water.—Mrs. L. M. Mayo, R.A.O.U., Brisbane.

[In his important paper on "The Behaviour of Noddy and Sooty Terns," 1908, Prof. J. B. Watson stated that these "birds never swim nor dive. . .During my three months' stay (on the Tortugas Islands) I never saw one of these birds in the water, except by accident, and then the bird, if the tide is against it, can never reach the shore, so poorly does it swim." Audubon, however, in his *Birds of America*, 1840, wrote of the noddy: "It swims with considerable buoyancy and grace, and at times immerses its head to seize on a fish." Mrs. Mayo's interesting observation is in agreement with this latter statement and shows how dangerous it is to deny the capacity of a bird to perform any action.—Editor.]

* * *

White-backed Swallows (*Cheramoeca leucosternum*) **near Brisbane.**—"It is remarkable that in Eastern Australia this bird is strictly an inland species, while in South and Western Australia it also occurs on the coast." In this sentence North summed up our knowledge of the distribution of the rarest of the four Australian Swallows. Reference to all other published information on the subject is in complete accord with North's summary. There is no record of the occurrence of the White-backed Swallow anywhere east of the main divide in Queensland, New South Wales or Victoria. It was therefore with extreme surprise that I saw one of these birds flying about over the Brisbane river on Sept. 29, 1923. I was standing at the time on the edge of a sandy cliff at Figtree Pocket, 15 miles above the city following the windings of the river. This cliff is greatly favoured by Bee-eaters or Rainbow-birds (*Merops ornatus*) which nest here in large numbers, excavating burrows in the face of the cliff. Knowing that the White-backed Swallow also nests in burrows and is fond of excavating them in just such situations, I watched this individual with great interest hoping that it would presently fly into a hole in the cliff below me. Though it often came close to the cliff, giving me excellent views of its strikingly contrasted black and white plumage as it flew past a few feet below, it showed no special interest in any particular portion of the cliff and I was forced to conclude that it was a solitary individual. During the next few weeks I visited the spot on several occasions but did not see the unusual visitor again.

However, two months later, on Dec. 1, 1923, I saw another solitary individual flying over a grassy paddock on the river bank at Sherwood, about a mile lower down the river on the opposite bank. Again a month later yet another solitary bird of this species was seen by me towards evening flying rather high above the tree tops at Sherwood. This was on Jan. 2, 1924, and from that date until June 28, 1925, I did not see another specimen. On the latter date two White-backed Swallows were flying about together along the face of the same cliff at Fig-tree Pocket where I first saw a bird of the species 21 months before.

On July 19, 1925, I visited the same spot with Mr. J. Mann, R.A.O.U., and found five birds of this species flying about the cliff. They frequently uttered a rather harsh twittering call. Occasionally one flew to the face of the cliff and clung just beneath a hole there for a moment, and on one occasion one actually entered the hole but very soon emerged again. On inspection the hole was found to go in at least a foot; the entrance was fairly large but it soon dwindled, and it was impossible to see the end. The mouth showed traces of recent scratching.

A week later I visited the spot with Mrs. Mayo, R.A.O.U., and though the birds were not at first in evidence we later saw five or six flying about. Mrs. Mayo informed me that she had previously seen white-backed Swallows about the banks of the Brisbane River on several occasions, but her reports of their occurrence had been received with incredulity by local naturalists.

I mentioned to Mr. Edgar Young that I thought these birds were breeding at the sandpit, and on August 3 he visited the spot in the hope of securing photographs. Though he waited 1½ hours with his camera by the hole the birds did not enter it, and he concluded that they were a pair with three young and that nesting operations were over. It is noteworthy that on June 28 I only saw two birds, whilst from July 19 to Aug. 3 five were constantly present, which strongly supports Mr. Young's view. We may reasonably conclude that the species actually nests in the banks of the Brisbane River and is not only a visitor.

On Aug. 5 I saw a single White-backed Swallow between Gatton and Lowood, near the Lockyer Creek, a tributary of the Brisbane, whilst on Aug. 10, again in company with Mrs. Mayo, I watched three flying about a steep sand-cliff at the narrows of the Brisbane River, about two miles above Riverview, twenty miles above Sherwood.

The occurrence of the White-backed Swallow as a rare species, probably breeding, in the Brisbane district is thus well established.

The late A. J. North remarks in connection with the distributtion of several birds that whilst in New South Wales they are only found in the western districts, in southern Queensland their range extends to the coastal districts. The White-backed Swallow may be added to the species cited by him. Another inland species which is fairly common near Brisbane is the Red-backed Kingfisher, *Halcyon pyrrhopygius*, which breeds regularly about Sherwood. I have several times also seen Quarrions, *Leptolophus hollandicus*, in the Lockyer district, which is not far inland. The intrusion of such characteristic inland forms into districts where typical jungle species occur in the scrubs is of considerable interest. It is doubtless due to the lack of any high dividing range in this portion of eastern Australia.—W. B. ALEXANDER, Sherwood, Brisbane.

Bird Protection.

WILD LIFE PRESERVATION SOCIETY OF AUSTRALIA.

The annual report of this society for the year 1923-4 has recently reached us. In spite of its title the Society appears to confine its activities entirely to New South Wales, but in that State it is clearly doing excellent work.

It is obvious that the Society is wise in endeavouring to increase its membership since the larger the number of voters represented the more chance there is that politicians will pay heed to the views of deputations. For this purpose the Society has issued various attractive posters appealing for support. We trust all members of the R.A.O.U. in N.S. Wales will help by joining the Society and hanging its posters in their neighbourhood. The Secretary is, A. W. Atkinson c/o. Customs House, Sydney.

State Secretary's Report.

New South Wales.

At the annual meeting of the Ornithological Section of the Royal Zoological Society and N.S.W. Branch of the R.A.O.U., held in Sydney, on July 16, Mr. A. H. Chisholm was re-elected Chairman, Mr. A. F. Basset Hull vice-chairman, and Mr. N. W. Cayley hon. secretary.

The following is a summary of the Annual Report :—

Nine meetings were held during the year, all being satisfactorily attended, and all being marked by addresses and discussions providing interest and enjoyment.

On August 22, 1924, Mr. A. H. Chisholm led a discussion on voice mimicry among Australian birds. This address was subsequently elaborated in writing and published in the *Nineteenth Century* (Eng.), for August, 1925—the first time for many years that this famous journal has discussed Australian birds.

On September 19 Mr. H. Wolstenholme lectured on " Australian Birds Names and their Meanings." This address has also been elaborated, and will probably be printed in association with the second edition of the *Check List* of the Australian birds.

On October 17 Mr. E. J. Bryce gave " Some Observations on bird life in North America."

On November 21 Mr. Chisholm reported on the proceedings of the annual congress of the R.A.O.U., held in Central Queensland during October. Mr. Wolstenholme spoke on the birds observed during that trip.

On January 16, 1925, Mr. N. W. Cayley contributed " Observations on the Plumage Display of some Australian birds."

On February 20 Mr. T. Iredale led a discussion on the genus *Gerygone*.

On March 20 Mr. David Uniapon, the educated aborigine, spoke of aboriginal myths and legends relating to birds and mammals. On April 17 a fine series of pictures of birds, taken by Mr. Otho Webb, of Queensland, were shown as lantern slides by Mr. Cayley.

On May 15 further lantern slides from bird photographs were shown, the pictures being by Messrs. D. W. Gaukrodger (Q'land.), A. E. Keane (N.S.W.), and M. Cohn (Vic.).

On June 19 Mr. P. A. Gilbert gave a comprehensive paper on "The Superb Lyre-bird," based on observations made in the National Park.

In connection with the report upon the congress of the R.A.O.U., members expressed resentment of the meagre representation of N.S.W. upon the Council of that body, and approved of the drastic alterations in rules that the annual meeting had ordered consequent upon the unsatisfactory features of the elections. More recently it was decided to write the general secretary of the R.A.O.U. inquiring whether congress decisions had been put into effect.

Several inter-State visitors and others from country districts of N.S.W. were welcomed to meetings during the year. Other personal episodes were the tendering of felicitations to Mr. Wolstenholme, who is now on an extended visit to England, the making of the presentation to Mr. E. Nubling on the occasion of his marriage, and the making of a presentation to Mr. Frank Farnell, Chairman of the National Park Trust, in acknowledgment of his many courtesies to bird-students. Mr. Nubling was presented with a painting of a Bower-bird, and Mr. Farnell with a painting of a Lyre-bird.

It is due largely to Mr. Farnell that a Cabin in National Park, long a desideratum of bird-men, has come into being. In other days certain members of this section frequently spent the night in the National Park with no other shelter than that afforded by trees or caves. From this cheerful practice grew the movement that has resulted in the establishment of what is known as the first Biological Station in Australia. The little group of bird observers had meditated establishing a small camp of some kind at their own expense, and when they approached Mr. Farnell on the subject he agreed, on behalf of the Trust to build them a solid cabin. After that he went a step further ; he offered the R.Z.S. generally the use of a stone cottage at the coastal end of the park. Upon this a biological section of the society was formed and the cottage taken over. The cabin, meanwhile, was being built, and when complete it, too was taken over by the R.Z.S. The opening function in both cases was held on March 21. The Chief Secretary handed over the cabin to the president of the society, who in turn, handed it over to the chairman of this section. A similar procedure was adopted in respect of the biological section s cottage.

The cabin is situated about two miles from Waterfall railway station, and close to one of the best areas of brush in the reservation. It should assist us materially in working out life histories of the birds in the park, and we hope to use it to good advantage during the coming spring. We hope also to have co-operation at suitable times from workers in other classes of wild life.

At the same meeting preliminary arrangements were made for preparing a working List of the Birds of New South Wales.

Correspondence.

THE INTERNATIONAL MUSEUM OF COMPARATIVE OOLOGY.

(To the Editor).

Sir,—The action taken by the Royal Australasian Ornithologists' Union in Congress assembled, October 22nd, 1924, is a serious matter. Upon the gratuitous assumption of illegal intent upon our part, this learned body publicly arraigns one of its own members, previously unadvised, stigmatizes a sister institution of science, and virtually threatens an important section of its own members with ex-communication. The crassness and the injustice of this attack alike stagger belief.

In the report of the October meeting *The Emu*, January, 1925 p. 196, says : " Those who had seen the first number of the ' Comparative Oologist,' the Journal of the International Museum, stated that members of the museum were expected to contribute eggs of the value of ten dollars annually, and that the authorities of the museum promised not to publish lists of the eggs received from contributors for fear of prejudicing their interests. This appeared to imply that members were expected to disregard the law in order to secure rare eggs for the Museum." The insinuation and bias of this report will be manifest upon the perusal of the offending paragraph, which reads as follows :

" The management of the International Museum of Comparative Oology undertakes to furnish to its membership annually an exact accounting of all receipts and expenditures, both oological and financial ; but it will not make specific report of oological contributions for public use, save by general inclusion, or for purposes of scientific review. In particular, it requests permission to report specifically and *confidentially* the exact receipts through Member contributions ; but even in this case we will refrain upon express injunction, if such publication is thought likely to be prejudicial to any member's interest."

Note that the only reports ever contemplated were those to be circulated among the members, who alone have presumptive interest in such details. The specific embarrassment feared, and one which has actually been protested, is that members reporting to us rare takes would be overwhelmed by requests from fellow members for similar material. That we ever contemplated operations outside the pale of the law is a gratuitous assumption which could only have originated in prejudiced and *ex-parte* councils. We have never been party to, nor have ever contemplated any illegal operations whatsoever, and we call publicly upon all our membership to bear out this statement. If we were bent upon evading the laws (however oppressive at times) do you suppose that this institution, now (with its predecessor) in its tenth year, would still lack the egg of the California Condor (*Gymnogyps californianus*)? Two-thirds of the existing members of this noble race nest within a one-hundred mile radius of this institution, yet we have sternly refused to be a party to, or to profit by, the various illicit operations by which the eggs of this vanishing race have found their way into various collections. Personally, we believe that the interests of science and of posterity would be better served if we were permitted to secure an example of the egg before it is too late. But we are abiding by the decision of the law and of its lawfully appointed custodians.

Of course, if the Royal Australian Ornithologists' Union sees fit to stigmatize egg-collecting *per se*, or to instruct its membership, from the president down, how they shall behave in respect of their scientific affiliations, that is its privilege; but the resolution as worded I hold to be an open insult, and this action unworthy of the traditions of English gentlemen.

International Museum of Comparative Oology,
Santa Barbara, California.

Very truly yours,
WILLIAM LEON DAWSON,
May 7, 1925.

[The resolution to which Mr. Dawson objects reads as follows:—"That it is undesirable that any member of the R.A.O.U. be a member of or subscriber to the International Museum of Comparative Oology of Santa Barbara, California, U.S.A." We think it is an exaggeration on the part of Mr. Dawson to describe this as "virtually threatening an important section of members of the R.A.O.U. with ex-communication," and it is certain that those responsible for the motion did not intend "to stigmatize egg-collecting, *per se*," since both the mover and the seconder are themselves collectors.

We cannot of course speak authoritatively as to the motives which led those present at the last annual meeting of the R.A.O.U. to vote for this motion. It is evident that there was considerable misapprehension on the subject of the *confidential* reports, and members will be pleased to have Mr. Dawson's emphatic disclaimer that these were intended to hide illegal operations. Since it is now illegal to export natural history specimens, including bird's eggs, from Australia, unless special permission is obtained from the Minister for Customs, Mr. Dawson cannot expect to receive many Australian bird's eggs for his Museum. We think it probable that the strong feeling in favour of preserving valuable Australian specimens in Australia, which led to the prohibition just mentioned, was the main cause why the motion was carried. Members probably felt that while Australian Museums mostly suffer seriously from lack of funds and while their collections are still mostly sadly imperfect, it would be unpatriotic of residents in Australia to pledge themselves to contribute to a foreign institution.—*Editor.*]

Library Notes.

By F. Erasmus Wilson, Hon. Librarian.

The following publications have been received since the last notes were prepared (*Emu*, Vol. XXV., p. 44) :—

Revue Francaise d'Ornithologie : Nos. 190, 191, 192.

Revista Italiana di Ornithologia : 1923, 1924.

Zoological Record, Vol. LX., 1923, XV, *Aves*, W. L. Sclater, M.A.

The Condor, Vol. XXVII., No. 2. "Notes on Sea-birds observed between England and New Zealand, *via* Panama." By J. G. Myers and R. A. Falla. "The Relative Value of Bird Measurements." By W. H. Bergtold.

The Auk, Vol. XLII., No. 2. "A Graphic Method of Recording Flight." By Earl L. Poole.

The Queensland Naturalist, Vol. V., No. 1.

The Victorian Naturalist, Vol. XLI., No. 12.

The South Australian Ornithologist, Vol. VIII., Part 2. "An Interesting Ornithological Record for South Australia" (Recording the occurrence of *Pterodroma lessoni* at Encounter Bay.) "The Pectinate Middle Claw in Australian Birds." By A. M. Morgan. "Notes on the Birds of the Port Lincoln District." By J. Burton Cleland, M.D. "Birds seen between Beltana, Farina, and Cordillo Downs Station." By J. Burton Cleland, M.D.

Avicultural Magazine, Vol. III., Parts 2 and 3 . Part 2 contains an excellent photo of a pair of Southern Stone Curlews with young, taken by Mrs. A. L. Nimmo of South Australia.

British Birds, Vol. XVIII., Nos. 11, 12. No. 11 contains "The Effect of Hot Sun on Young Birds." By Albert H. Willford.

Bird Lore, Vol. XXVII., Nos. 1, 2. No. 1 contains "With Camera and Jack-Light on the Seashore." By Henry R. Carey. A most interesting article with unique illustrations opening up a new field for bird photographers. No. 2, contains a handsome coloured plate of Humming Birds. "Two Days with the American Avocet." By Walter W. Bennett.

Proc. Linn. Soc., N.S.W., Vol. I., Part I.

Ibis, 12th series, Vol. 1, No. 2. "Some points in Labelling Specimens." By Claud B. Ticehurst, M.A., M.R.C.S., M.B.O.U. This paper is well worth perusal by collectors of skins, as some valuable hints are given *re* sexing, age, etc.

Notes and Comments.

In this number we publish extracts from the first report of the Migration Committee. It is disappointing to learn that so few members of the Union responded to Mr. Cohn's request to supply him with their observations and we hope that during the coming season the Committee may be able to secure many other correspondents.

In order that any adequate idea of the movements of our birds may be obtained hundred of observers are required. Every member of the Union must surely make at least one observation each year as to the arrival or departure of some migratory bird. By itself such an observation may be of little value, but if many such observations can be collected they may reveal facts of great interest.

If *you* have made any observations of this nature please send them to the convener of the committee, Mr. M. Cohn, 29 Hope St., Bendigo.

The following have been enrolled as members of the R.A.O.U. since June, 1925. In N.S.Wales: Misses V. A. Bartlett, E. Doyle, J. Hook, and D. McCulloch, and Master J. Wansey; in Victoria: Messrs. N. A. Arnold and E. V. McHutchison and Rev. C. J. Lang.

The following members have resigned. In N. S. Wales: Messrs. C. J. Bauer and R. Beach; in Victoria: Messrs. G. M. Black and A. MacCaskill, Jr.; in Queensland: Dr. H. Kenny; in New Zealand: Mr. A. Hansen.

The Moscow Ornithological Society, Moscow, Russia, has become a subscriber to *The Emu.*

An article by Mr. A. H. Chisholm, Chairman of the N.S.W. Branch of the R.A.O.U., which appeared recently in the *Australian Zoologist*, and which dealt largely with matters affecting the R.A.O.U., was commented upon in the " Library Notes " of the July issue of *The Emu.* Arising from this, the N.S.W. Branch desire to point out that the article in question was written at the request of the editor of the *Zoologist*, who is an ex-President of the R.A.O.U., and that it was not merely Mr. Chisholm's private opinion, as the " library note " inferred, but the opinion of N.S.W. members generally, who have since re-elected Mr. Chisholm as their Chairman. It is added that N.S.W. members join with those of Queensland in resenting the conduct of the last election (which, they point out, had a wholly inequitable result) and that, as regards collecting of birds or eggs, they agree with the *Zoologist* statement that such work should only be done under permit and for a definite, disinterested purpose. Further, it is urged by N.S.W. members that Mr. Chisholm's long and valuable service to the R.A.O.U., in various States, should have been sufficient to prevent the suggestion by the librarian that he is now trying to arouse " interstate jealousy."

All communications in connection with the *Emu*, and articles or photos for publication should be addressed to the Editor at Sherwood, Brisbane, not to the official address of the Union. Authors desiring reprints of their articles should note on their manuscript the number required.

The date of publication was October 9, 1925.

NATIONAL MUSEUM MELBOURNE

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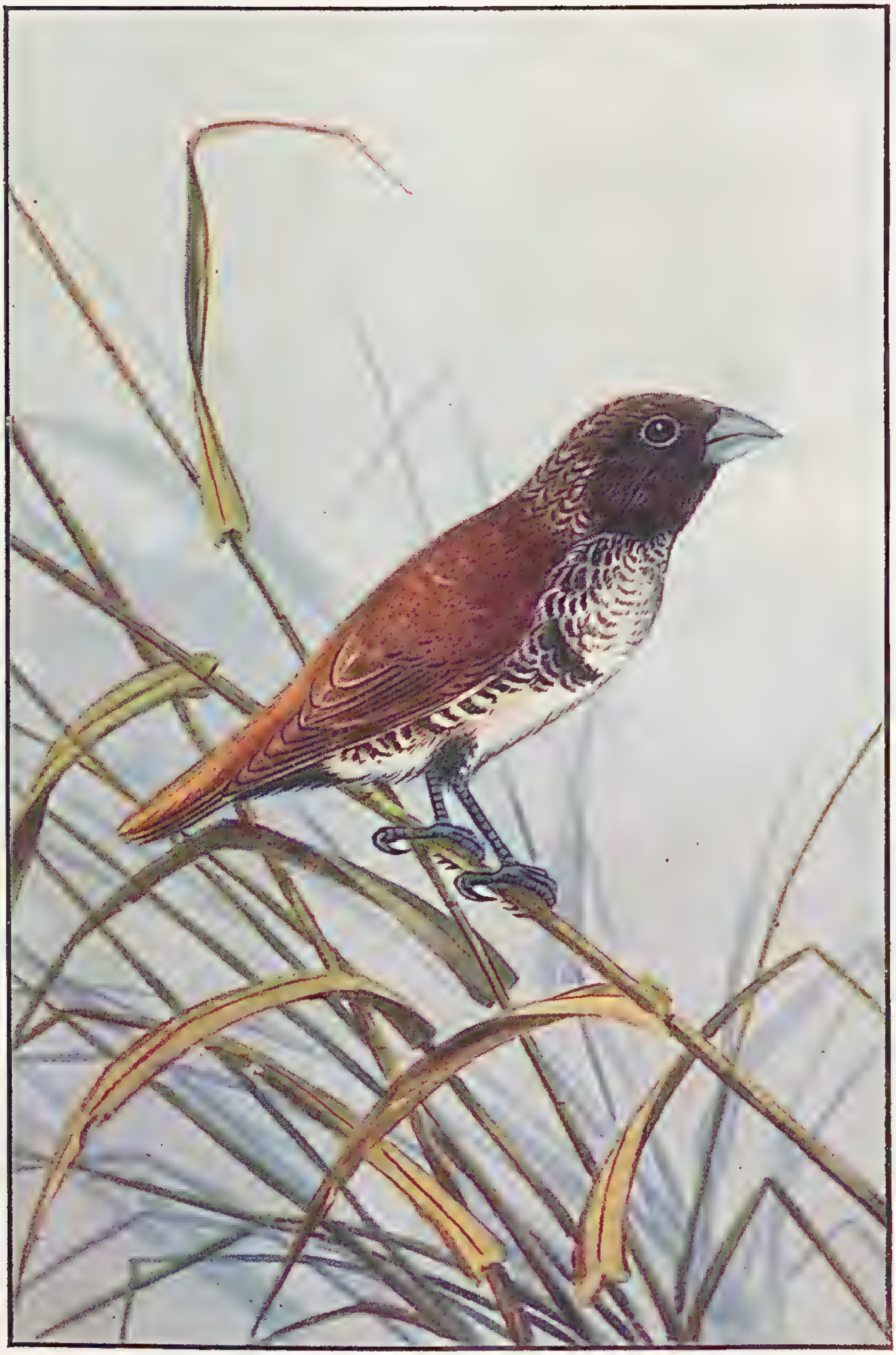

SCALY-CHESTED FINCH

Donacola lepidothorax, sp. nov.

From a painting by Neville W. Cayley, R.A.O.U.

The Emu

OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

VOL. XXV.] 1st JANUARY, 1926. [PART 3

A New Australian Finch.

THE SCALY-CHESTED FINCH, *Donacola lepidothorax.*

BY NEVILLE W. CAYLEY, M.B.O.U.

FOR the privilege of describing and figuring, what appears to be a new species of Finch, I am indebted to Mr. G. A. Heuman, an aviculturist with thirty odd years' experience of Australian Finches.

Many beautiful hybrids are bred in aviaries from time to time, the offspring of some strange matings of birds of quite distinctive genera; the progeny of these mixed matings in most cases, retain certain outstanding characteristics of both their parents; the bird here described, however, was not bred in captivity, and shows, to a marked degree, characters of the three species of the genus *Donacola* found in Australia.

Whether it is a hybrid, or sport, it is quite distinctive, and as such worthy of being placed on record, and given specific rank. For, further information relative to the bird, I refer readers to Mr. G. A. Heuman's article, " Birds in the Northern Territory and the New Finch," appearing in this issue.

The accompanying figure, as well as the description and measurements, are from life.

Adult Female.—General colour above, including the wings, cinnamon-brown, the feathers of the back having ashy tips; rump and upper tail-coverts, orange-yellow; central pair of tail feathers, straw-colour, the remainder brown edged straw-colour on the outer webs; forehead, crown of the head, and nape, ashy-grey, with brown centres to the feathers; lores, a narrow line of feathers over the eye, sides of face, ear-coverts and throat, blackish-brown, with narrow light brown shaft lines on the ear-coverts; fore-neck and chest, white, the feathers having a subterminal bar, more distinct on the sides, followed by a black band broken in the centre; remainder of under surface white, some of the feathers on the sides of the body cinnamon with black and white bars; under tail-coverts black; bill slate-blue; legs and feet slate-black; iris black. Total length in the flesh 110 mm., wing 55, tail 34, culmen 12, tarsus 25.

Birds in the Northern Territory and the New Finch.

By G. A. HEUMAN, R.A.O.U., Beecroft, Sydney.

SOME years ago I undertook a trip to the Northern Territory for the purpose of finding a finch that was said to exist, but had never been caught or adequately described. The bird was said to be the size of a Masked Finch and its colour steel-blue, with white spots. Even to this day, no skin of this bird exists in the Australian Museum, nor, as far as I know, elsewhere.

Although I failed in the purpose of my quest, I have never been sorry that I had the opportunity to travel through these inhospitable regions and to study the ways and habits of the Northern Territory finches in their native home. In these short notes I will not attempt to describe my three months of travel. No written description could give an adequate idea of the country. I would recall the words of the great French writer Chateaubriand who says, in trying to describe the vastness of the prairies of Southern North America, " Je les decrirais en vain a ceux qui nont point parcourrus ces champs primitifs de la nature." I will limit myself to a description of my stay at one water hole called the Granite Rocks, about 200 miles south of Darwin. The extension of the railway from Pine Creek to the Katharine was not then made and I had to hire donkeys at Pine Creek for my further journey. There was a fine little water hole at the Granite Rocks, a locality which derives its name from the huge boulders of granite which are sometimes piled up so that two or three rest on top of one another. It must have been an enormous upheaval which once upon a time lifted these boulders weighing many thousands of tons.

It was July. The sun during the day was blazing hot, but the nights were bitterly cold, the thermometer registering as low as 42 degrees. Game was plentiful. There were plenty of Wild Turkeys (*Eupodotis australis*) and the Partridge Pigeons (*Geophaps smithi*) were exceptionally numerous. One day I counted 87 coming in single file to have their afternoon drink. Jabirus would often pay a visit and wild ducks were plentiful enough at any time. Early in the morning, before the sun rose flocks of parrakeets would fly screaming over our camp, then the Peaceful Doves (*Geopelia placida*) would arrive in untold numbers. In fact the noise of their flight when frightened reminded me of the breakers thundering on a beach. Next to make their appearance were hawks which came to await the arrival of the finches. I cannot remember the different species, but I generally shot a dozen before breakfast, and amongst them that lovely white species (*Astur novæ hollandiæ*) which looked almost like a white dove. In view of the enormous quantities which are being destroyed day by day by these hawks, one cannot help thinking that a little more liberality might be shown in issuing permits for the capture of Northern Territory finches for avicultural purposes. Only those who have actually seen the enormous numbers of Gouldian, Long-tailed, Masked and other Finches which come to drink can realise that the disappearance of a thousand dozen out of one flock visiting one water hole would not cause a noticeable diminution in their numbers. It would be like taking the proverbial drop out of a bucket of water.

It is an exceptionally fine sight to see this mass of Gouldian (both red and black-headed with their beautiful purple breasts), Masked and Long-tailed Finches literally covering the ground and trees around the water hole. These three species one finds at every water hole, and always in untold numbers, whereas, the Black-rumped Double-bar (*Steganopleura annulosa*), the Blood Finch (*Neochmia phaeton*) Star Finch (*Bathilda ruficauda*) and Chestnut Finch (*Donacola castaneothorax*) are confined to special localities. That perhaps is the reason why I could not find the bird for which I undertook this interesting but arduous journey.

Whilst the Peaceful Doves came to drink only once a day, in the morning, the Partridge Pigeons, in single file, only drank between two and three in the afternoon. The finches, besides their drink in the morning, would come again about 3 p.m., whereas, the Brown's Parrakeets (*Platycercus venustus*) and Hooded Parrakeets (*Psephotus dissimilis*) came off and on during daytime. They did not seem to have a special time for drinking. I wish to mention specially a Black Robin. I only saw one pair which hung about the camp, the cock, a jet black bird, the hen more sooty, of the same size and habits as the well-known Yellow Robin. It would come readily for a meal worm and would cling slantingly to a sapling as our Yellow Robin does.

All along the route the trees were lined with innumerable nests of the finches, and it appears that families occupy one sleeping nest. probably to keep themselves warm. Further inland towards the Mary River and Alligator swamps, where man with his gun has not penetrated frequently, big water birds are most prolific. In fact it ceases to be sport when one can sit on the edge of a billabong and shoot at flocks of ducks or geese which, on the report of a gun, will just rise and alight again in the same spot.

Perhaps I may be pardoned for mentioning here the beautiful fish suitable for aquaria one finds in the creeks and billabongs. Some species of these will bury in the mud, becoming baked through the heat, until the heavy rains release them once again. These are little mud carps almost purple. Then there are cat-fish which the natives call " needle-fish," and a beautifully shaped silver fish with five black spots on each side called " five-guns," and many others of beautiful coloration, none of them longer than three to four inches.

During my stay near Darwin, I saw amongst a flock of Chestnut Finches (*Donacola castaneothorax*) a bird with a speckled chest like that of a Pectorella (*D. pectoralis*) but otherwise in shape and colour that of a Chestnut. At the time I supposed it to be a hybrid and paid no further attention to it. However, last year I received a very small consignment of Northern Territory birds for which I had kindly been granted a permit. Amongst these I recognised one of my old friends. Carefully examining the bird, I came to the definite conclusion that it was not a hybrid but might be a distinct species, as the Yellow-rumped Finch (*D. flaviprymna*), which also flies with the Chestnuts, is now regarded as distinct. I have shown the live bird to Mr. Kinghorn, of the Australian Museum, and other authorities, but the decision as to whether the bird is a sport or a distinct species has been deferred for the present.

The Northern Territory Chestnut Finches are slightly larger and far more intense in colouring than southern examples of the species. This new bird is of the same size and colour as the southern form of the Chestnut Finch, except that the broad mottled black or almost black band which in the Chestnut Finch divides the brown chest from the white feathers of the abdomen is broken in the centre. The brown breast of the Chestnut Finch is replaced in this bird by scaly feathers of sooty black and dirty white, similar to those on the breast, of the Pectorella. The margins at the side are slightly suffused with very light brown, and the top of the head is very slightly more grey. In the Chestnut Finch the rump is principally black, in this finch it is less black and more nearly resembles that of the Yellow-rumped Finch. In the sun the upper surfaces of the wings show a slight greyish hue, with tiny white spots with a little dash of black over them, similar in colour and markings to those of a Pectorella.

Personally, I am inclined to think that these few birds are the remnants of or reversions to a form ancestral to the Chestnut Finch, the Yellow-rumped Finch and the Pectorella. The bird undoubtedly exhibits characteristics of each of the three species. My specimen is a hen, and I have given it the choice between a cock Pectorella and a cock Chestnut Finch. It has chosen the latter for a mate and I hope, if all goes well, to find out something more definite later on.

The most experienced trapper in the Northern Territory told me that he looked upon these birds as sports. He estimated that three of them may be found amongst a flock of a thousand Chestnut Finches. However, as they are always in existence, I should say they cannot be a sport but must be regarded either as a species or as a reversionary form as suggested above. If they were a sport, one would expect them also to be found amongst the Chestnut Finches south of the Northern Territory, but in my 30 years' experience of bird keeping, I have never seen one in one of the bird shops, where thousands of Chestnut Finches are caged during the year. Enquiry amongst trappers and bird dealers both in Brisbane and Sydney has elicited the information that a bird such as I have described is quite unknown to them.

NATIONAL [illegible]

MR. J. A. ROSS, RETIRING PRESIDENT, R.A.O.U.

Photo. by "Sarony," Melbourne.

Recollections of an Oologist.

By J. A. Ross, R.A.O.U., Melbourne.

Presidential Address, read at Melbourne, September, 1925.

My earliest experiences in connection with oology were obtained at an old building, formerly used as a church, in a country town in Victoria. Adjacent to the abandoned church we had a fruit garden which was visited by flocks of sparrows, whose homes were in the old building, which had solid walls of stone, and a shingle roof, leaving ample space for nests between the tops of the walls and the shingles. With a long ladder we were able to ascend to the nests, and by periodically taking all the eggs we could find we endeavoured to keep the sparrows in check. But I'm quite sure that our efforts had no appreciable effect, although we gathered dozens of eggs which when blown were kept in glass topped cardboard boxes. Somewhat later we also visited sparrows' nests in the blue gum trees which had been planted by the municipal council in the streets, and in one of these trees we obtained a cuckoo combination which was unique as far as my experience goes, for I have never heard of a similar combination since. It was a clutch of House Sparrow (*Passer domesticus*) with an egg of the Narrow-billed Bronze Cuckoo (*Chalcites basalis*). That would have been an interesting clutch if it had been properly prepared and preserved, with the details which are now considered necessary for each set in a collection. In those days our untaught methods were to make a small hole in the small end of an egg and a slightly larger hole in the opposite end, and by blowing at the small end force the contents out at the other. No particulars were recorded and the eggs were not kept separately or marked in order that those of each clutch could be identified. But in the general progress which has taken place oology has made its advancements, so that a modern egg collection and the records kept with it will show, not only the size, shape and colour of eggs and the number produced for a sitting, but also the types and construction of nests, the places where the birds build, the class of country they inhabit, the range of different species, and the extent of the breeding season.

Following the experiences with the sparrows we took excursions into the bush and we learned to know many of the birds, and gained considerable knowledge of their habits. And we had home-made names for some of the birds. For instance, the Narrow-billed Bronze Cuckoo (*Chalcites basalis*) was the "Snakebird," but why it was so named I never learnt, although I was inclined to believe that that name was a variation of "Sneakbird" which might have been bestowed because of the cuckoo's habit of putting its egg in another bird's nest. The Grey Shrike Thrush (*Colluricincla harmonica*) was with us the "Large Thrush," and the Rufous Whistler (*Pachycephala rufiventris*) was the "Small Thrush," probably because the female of the latter was somewhat similar in colour to the former. The Spotted Pardalote (*Pardalotus punctatus*) was the "Diamond Sparrow," the Buff-tailed Thornbill (*Acanthiza reguloides*) was the "Bark Tomtit," the Southern Yellow-Robin (*Eopsaltria australis*) was the "Yellowhammer," and so on.

We did not take many eggs, two or three of each species were sufficient for us, but when we found nests we always inspected them, if they could be readily inspected, but tunnels of pardalotes and nests in hollows were usually left undisturbed.

I think the brightest red-letter day for us, as boys, was when a pair of eggs of the Southern Stone-Curlew (*Burhinus magnirostris*) was found on the ground. Only once was such a find made, although the birds were plentiful in the district.

In the days when Mr. A. J. Campbell used, from time to time, to write his interesting and instructive articles on birds for the *Australasian*, if he happened to choose for his subject a bird fairily common in our district we felt we were not being taught much about its nesting habits, but many of the birds of which he wrote were quite unfamiliar to us and of some of them we did not know the name until we read his articles.

When school days were done, and the city called, the opportunities for bird observing came only at long intervals, but there came a day one September (a Show Day Holiday) when I happened to be rabbit shooting, and became associated with two foundation members of the R.A.O.U., namely, C. F. Ladwig and A. H. E. Mattingley. The former drew my attention to three species of Cuckoos, The Pallid (*Cuculus pallidus*), the Golden Bronze (*Lamprococcyx plagosus*) and the Fan-tailed (*Cacomantis flabelliformis*). The last named was new to me, but I had known something of the other two. That day I heard of the Australian Ornithologists' Union and, through Mr. Mattingley, I obtained membership—just 20 years ago. I also received from Mr. Mattingley an invitation to join him and some others on the following Sunday in a day's bird observing at Parwan. The party at Parwan included F. E. Howe, and for several years after that Messrs. Mattingly and Howe and I were in close association in many field excursions, and Mr. Ladwig frequently joined us. Even yet we sometimes have outings together, although not so frequently as in earlier times.

It therefore follows that most of the records now to be mentioned are the results of observations made in company with one or more of those three members of our Union. Other members of the Union who have accompanied us on our excursions afield are C. F. Cole, R. H. Archer, H. A. Purnell, C. W. Bunn, H. W. Bunn, and F. Stanley. And several of our best excursions were taken as the result of the great kindness of J. J. Scarce who, when moving about the mallee boring for water, permitted us to stay at his camps, and sometimes joined us in our tramps through the bush. It was with him we had a six-mile walk through the mallee one dark night, when we went from Welshman's Plain to his camp, steering due north by the stars

I shall not attempt to deal with events in chronological order, or to take the birds according to their scientific grouping, but rather relate events as they come to mind so that the grouping will be determined more by association of ideas or by locality than anything else.

One interesting event which happened soon after I had become a member of the Union occurred at Parwan when a small party of us were bird observing in the deep depression through which the Werribee River runs. Mr. Howe drew our attention to a Black-fronted Dotterel (*Charadrius melanops*) which was standing on the sand near the water then very low in the river. It was alternately raising its head then lowering its beak to the sand in a series of bows, and, while we watched, its mate ran up and stood opposite it a few inches away, and joined in the bowing, so that the two looked like orientals salaaming to each other. When the ceremony was at an end, and the birds moved away we inspected the spot, and found there a slight depression in the sand. A week later that depression held three darkly speckled eggs which harmonized well with the sand on which they were lying.

On another occasion at Parwan we found a nest of Banded Plover (*Zonifer tricolor*) in which the young birds had just emerged from the eggs, one of the chicks being quite wet. Anybody acquainted with these Plovers will know the fuss the parent birds were making while our inspection lasted. We passed the spot a few hours later but the young birds had left it, showing that they are able to walk or run very soon after they are hatched.

At Pine Plains in the mallee when driving with the late Chas. McLennan, better known as " Mallee Bird," and with Messrs. Howe and Mattingley, we saw a pair of the same species of Plover with a brood of four young ones a few days old. We decided to have a close inspection of the chicks, and for this purpose we stopped the horses and descended from the vehicle, but in so doing took our eyes off the young birds, and it was only after diligent searching we were able to locate three of them although they were quite close to us. The fourth we could not find.

Another species whose young can fend for themselves very early is the Eastern Swamphen (*Porphyrio melanotus*). When wading in a swamp on a hot day in summer I came across a nest of this species containing three eggs and the shells of a fourth egg. The young one which had just hatched out had left the nest and was underneath it in the water. While I was looking at the eggs one of them chipped, and I waited for about ten minutes until the chick worked its way right out. In the meantime another egg had chipped.

Sight records, especially if the birds are at a distance when seen, are frequently unreliable, but one is much more liable to error in making records based on notes or supposed notes of birds. Once in the mallee we heard certain peculiar notes quite unusual to us. We expected to find the Singing Honeyeater (*Meliphaga virescens*) in this neighbourhood, but did not know its song. We were therefore inclined to believe we were hearing it for the first time. A year or two later we saw the singer in the same neighbourhood, just after having found its nest. It was the Wedgebill (*Sphenostoma cristatum*). There are many people in the mallee who will tell you that a call they hear at night is made by the Mallee Fowl (*Leipoa ocellata*). "What else could it be?" they ask. We know it unmistakably as the voice of the Spotted Nightjar (*Eurostopodus guttatus*). Another mallee incident was the hearing of a small squeaking note in several directions just before dark. We wondered if it could be the Red-capped Robin (*Petroica goodenovii*). What else could it be? And yet we did not think there were enough robins in the neighbourhood to make all the notes we were hearing. Next day it rained, and as night was approaching we heard myriads of those notes. Frogs were responsible for them. On another occasion in very dense scrub in the Dandenong Ranges we heard some very peculiar low notes, and by proceeding very quietly through the scrub we ascertained that they were being uttered by a Grey Shrike-Thrush (*Colluricincla harmonica*). On Sunday morning in a part of the bush which has now been cleared, and where one frequently sees surveyors' pegs and trenches, marking positions of building allotments, we heard behind us in the direction from which we had just come a noise like the mewing of kittens. We always investigate when we hear unfamiliar notes. In this instance, suspecting young White-backed Pipers (*Gymnorhina hypoleuca*) we retraced our steps and were astonished to find that the authors of the sounds were adult Grey Currawongs (*Strepera versicolor*). They had a nest in a tall gum-tree, but I managed to secure the three eggs it contained, and for several years that was the only clutch of that species in my collection. There is a second clutch there now. It was taken by A. P. Ingle who was a member of the Union, until, in 1917, he was killed while fighting with the Australian Troops at Passchendaele in Belgium. Two years after hearing the kitten-like notes of the Currawongs I again climbed the tree in which they had their nest, and this time secured three eggs from a nest of Orange-winged Sittella (*Neositta chrysoptera*). For several years, too, I had no other clutch of that species of Sittella, but a few years ago I added to my collection a second clutch which is very beutifully marked with heavy blotches. Interesting information in connection with the heavily blotched eggs is that for three years in succession a clutch was taken from the same pair of birds, one being my own, another in the collection of F. E. Howe, and the third is held by E. W. Bunn, and each year within two weeks of the clutch being taken the birds had built a new nest and produced three more eggs similarly marked. In fact in two years (I am doubtful about the third) the birds reared a second brood much later in the season, and the eggs from which the young were hatched were all of the same heavily blotched type. These birds were always in the one limited locality, and probably are still there.

To this same neighbourhood every spring came a pair of Leaden Flycatchers (*Myiagra rubecula*) and that they were the same birds was evidenced by their eggs, which were not like ordinary eggs of this species, but were always odd misshapen specimens very sparingly marked. One season a mile or more from this place we took a set of eggs of the Leaden Flycatcher, and soon afterwards boiled our billy and had lunch. A little later, only about an hour from the time the eggs were taken, and about 200 yards away, the Flycatchers were busy at work laying the foundations of another nest. As far as my experience goes, these birds always build their nest on a horizontal limb which has another arm of the limb curving over and running about a foot above and approximately parallel to the part on which the nest is placed. The Satin Flycatcher (*Myiagra cyanoleuca*) chooses a similar site, but near Melbourne they keep to the heavily and densely timbered ranges or foothills while the former species prefers the open forest country.

One day we noticed a nest of White-winged Chough (*Corcorax melanorhamphus*) which contained a brood of half grown young birds. Heavy rain set in and a parent bird sat on the nest and drooped her wings over the side of it, thus carrying the rain which fell on her beyond instead of into the nest.

On one occasion I showed F. E. Howe an egg of the Southern Scrub-Robin (*Drymodes brunneopygia*) and he at once stated : " You got that egg just below the big quondong on Wedge bill Flat." He knew it from its likeness to an egg he had got there a previous year.

A similar instance happened when a lad at Lorne showed me a pair of eggs of the Rufous Bristle Bird (*Dasyornis broadbenti*). He was much astonished when I told him he had got them at a certain bend on the George River. They were an uneven pair of eggs, one much more lightly marked than the other, but their unevenness was a repetition of the ill-matching of a pair of eggs I had taken once at the same bend.

Unevenness in the markings on eggs in a clutch is quite common in several species from the lordly Wedge-tailed Eagle (*Uroaetus audax*) to the dainty Hooded Robin (*Melanodryas cucullata*). And with some birds the eggs in a clutch sometimes vary considerably in size—a good example of this in my collection are two eggs taken from a nest of an Australian Little Eagle (*Hieraaetus morphnoides*) one being considerably smaller than the other.

Standing one afternoon on a log on the bank of a small creek in the Dandenong Ranges I heard the long swishing note of an Eastern Whipbird (*Psophodes olivaceus*). Presently the bird called again a little nearer, and soon it repeated the call as it ran along a fallen log near the one on which I stood. Each time the call was without the final crack. Then the bird flew across the creek to a sapling. Immediately it was joined by the female who received food from the male which had been calling, and then the female flew back to the thick low scrub from which she had risen to the sapling. A brief search disclosed a nest on which the female was sitting. It was built in bracken and well screened from above by spreading leaves. The male had called the female from the nest to feed her.

Frequently we have known male Robins, both the Scarlet (*Petroica multicolor*) and the Rose (*P. rosea*) call their mates from the nest and feed them, but usually the female does not return at once to the nest as did the Whipbird, but will accompany the male from tree to tree for a few minutes before resuming her duty at the nest.

The male Pilot-bird (*Pycnoptilus floccosus*) sometimes calls the female from the nest, and then she usually answers his call just as she leaves the nest. They will hop about for from a quarter to half an hour before she returns to the nest, and during that time the female will find food for herself and the male will give her what he finds.

As opposed to the birds which call their females from the nest one may note many species in which the male carries the food to the nest and feeds its sitting mate there. I was rather astonished once to see a Yellow-legged Spoonbill (*Platalea flavipes*) do this high up in a red gum growing in a swamp. Other species which adopt this course are the White-naped Honey-eater (*Melithreptus lunatus*) the Brown, the White-throated, and the Red-browed Treecreepers (*Climacteris picumnus, C. leucophaea*, and *C. erythrops*).

Then again with some species (as with domestic pigeons) the two birds take turns in sitting on the eggs. We have noticed Rufous Fantails (*Rhipidra rufifrons*) changing places on a nest at very frequent intervals, and so do Leaden Flycatchers (*Myiagra rubecula*), Satin Flycatchers (*M. cyanoleuca*) and Restless Flycatchers (*Seisura inquieta*).

One would hardly expect this habit to be indulged in when the male is much more brightly coloured than the female, but we have observed such instances with the Golden Whistler (*Pachycephala pectoralis*), the male of which has a beautiful and conspicuous yellow breast, and the White-browed Wood Swallow (*Artamus leucorhynchus*) where the male has a rich brown or chocolate breast.

One might draw interesting comparisons between birds which are very close sitters, and those which leave their nests at the slightest sound. Among the former may be mentioned members of the Quail family and the Quail-Thrushes which allow you almost to walk over them. Grey Fantails (*Rhipidura flabellifera*) and Rufous Fantails (*R. rufifrons*) have allowed us to touch them as they sat on their nests. At the other extremity might be mentioned the Pink Cockatoo (*Kakatoe leadbeateri*) which will usually fly quietly from the hollow containing its nest long before you are near it.

And it might be mentioned that some birds are quite silent when on their nests, while others are not so. Never have we heard a note from a hollow containing a brooding parrot or cockatoo, or from whistlers, robins, and many others while sitting on their nests. But the Eastern Spinebill (*Acanthorhynchus tenuirostris*) utters a sweet little song while on the nest. So does the Grey Fantail (*Rhipidura flabellifera*) and several others could readily be mentioned. I have known nests of both the Spotted and Chestnut Quail-Thrushes (*Cinclosoma punctatum* and *C. castanotum*) to be found owing to the sitting birds being heard giving their mouse-like squeak, but I must confess the notes of these birds are too fine for my ears to catch.

Most people are familiar with the Welcome Swallow (*Hirundo neoxena*) and have known pairs of the birds return to the same spot year after year to build their nests. Perhaps the nature of the places where they build brings this fact to the commonplace, but such could hardly be thought of the bush birds which have nesting sites by the thousand to choose from. Yet we have known non-migrating birds such as Orange-winged Sittella (*Neositta chrysoptera*) use the same fork in a tree two or three years in succession, and the Speckled Warbler (*Chthonicola sagittata*) build at the same spot on the ground for three successive years. And we have observed that the Olive-backed Oriole (*Oriolus sagittatus*), which migrates northward in autumn and returns to us in spring, will sometimes suspend its nest not only in the same branch, but exactly in the same part as it had occupied in the preceding year.

The architectural methods of the Brown Weebill (*Smicrornis brevirostris*) were a complete surprise to us. Other birds which build a domed nest and have the entrance hole in the side indicate quite early in their building the shape the nest will be. But the Weebill first builds a cup-shaped nest closely resembling those built by some of the honeyeaters, and later it appears to change its plans and places a dome over the earlier structure.

Some birds build their nests a considerable time before they are required for the eggs. We have noticed this with the Striated Thornbill (*Acanthiza lineata*) and the Speckled Warbler (*Chthonicola sagittata*), there being sometimes an interval of two or three weeks between the building of the nest and the laying of the eggs.

Probably no bird is more expeditious than the Rufous Bristle-bird (*Dasyornis broadbenti*) in building its nest and laying its eggs. Twice have I seen the laying of the first twigs for the foundation of the nest, and six days later the two eggs, which form the clutch with this species, were in the nest. This is remarkably quick, for the nest is a very compactly built tenement, and contains a great deal of material. Another bird which apparently wastes no time is the Chestnut Quail Thrush (*Cinclosoma castanotum*). One day towards the end of an excursion to Linga in the mallee country we found a hole scooped in the ground under a very small shrub, and as we had noticed Quail-thrushes in the vicinity, and the hole was near the road, we decided to make further investigations on the way home. The homeward journey was started only five days later, and we were delighted to find a female Quail Thrush sitting on the nest which in the meantime she had built in the hole. She allowed us to approach very near her before she flew from the nest and thus disclosed her two eggs.

Another very rapid builder is the Pilot-bird (*Pycnoptilus floccosus*). Early one morning Messrs. Mattingley and Howe and I noticed a member of this species with a broad leaf of a gum-tree in her bill. She deposited the leaf in a small heap of debris. The presence of two or three similar leaves there hardly gave promise of a nest, but late in the afternoon we revisited the place and found the main body of the nest completed, all it lacked was the inner lining. Usually it is about 10 days from when the Pilot-bird starts her nest until it contains its pair of eggs.

On a journey to Pine Plains in 1907 (the party consisted of the same trio) we had about an hour to wait at Murtoa while train-shunting operations were being carried out, so we wended our way to an adjacent belt of bull oaks and Murray pines, where we noticed a Red-capped Robin (*Petroica goodenovii*) busy on a nest which was almost completed about ten feet up in a bull oak. Ten days later on the homeward journey we returned to the belt of trees, but no vestige of the nest was to be seen. However, we found the place to which the birds had moved the nest. It was about twenty feet up in another bull oak, and contained three eggs.

On another trip to the mallee we watched a pair of Red-capped Robins building in a Murray pine, and learnt that the male of this species starts his matrimonial life before he has donned his mature plumage, for in this instance the male differed very slightly in colour from the female. We have since ascertained that the Scarlet Robin (*Petroica multicolor*) and the Rose Robin (*Petroica rosea*) also breed in immature plumage, so it is probable the two remaining species in this genus do so too.

There are many red-letter days in the experiences of an oologist. Some of ours were when we first saw certain species of birds which we had been led to believe were very rare. Perhaps the two most noticeable among these were the Pilot-bird (*Pycnoptilus floccosus*) and the Rufous Bristle-bird (*Dasyornis broadbenti*) two species which have many habits in common, and which inhabit similar classes of country, and yet are completely separated by the gap of about 70 miles between the Dandenong Ranges and Anglesey. Later, with each species, came the memorable occasion when we found our first nest. We knew that C. French, junr., the Government Entomologist, who used to be an ardent oologist, and whose egg collection is now in the Melbourne Museum, had made excursions extending over a period of twenty years in search of the eggs of the Pilot-bird, and that on some of those excursions he had been accompanied by another of our foundation members, G. E. Shepherd, a most observant field worker. When two such men as these had not achieved success with the Pilot-bird we deemed ourselves fortunate in finding a nest early in our career. But as our experiences became wider and fuller we realized that neither the Pilot-bird nor the Rufous Bristle-bird is rare. On the contrary, Pilot-birds are quite common throughout the ranges of Eastern Victoria, and almost every suitable stretch of scrub in the Otway Ranges holds at least one pair of Rufous Bristle-birds. Another bird which is thought by many to be rather rare in Victoria is the Olive Whistler (*Pachycephala olivacea*) but we have frequently come across it in the Otway Ranges, the Dandenong Ranges, and the mountainous country about Healesville. There was the day we found the nest of a Wedgebill (*Sphenostoma cristatum*) in far North West Victoria, and the morning we discovered the Fairy Terns (*Sterna nereis*) breeding on Mud Island. Both these were, I believe, new records for Victoria. Another memorable day was that on which we found our first nests of the Shy Ground-Wren (*Hylacola cauta*) and Southern Scrub-Robin (*Drymodes brunneopygia*), the two within a few yards of each other. And neither Mr. Mattingley nor I will forget our first excursion to a colony of breeding egrets and herons. At this colony there were nests of the White Egret (*Egretta alba*), the Plumed Egret (*E. intermedia*), the White-necked Heron (*Notophoyx pacifica*) and the Nankeen Night Heron (*Nycticorax caledonicus*). There were hundreds (probably thousands) of nests of the last named species.

At Boinka I was very close to, but just missed seeing, an extremely interesting sight. Mr. Scarce and I were a few yards apart when he called to me to get a stick because he had his eye on a big snake which had a Chestnut Quail-Thrush (*Cinclosoma castanotum*) in front of it in a sickly attitude. Before I could get a suitable stick the snake made for a small hole in the ground, down which it disappeared very quickly. The snake's head had been raised from the ground and moved slowly from side to side a few inches in front of the bird, which had its feathers fluffed out and looked droopy and sick. Immediately the snake lowered its head and moved away the bird became normal, and I heard the whir of its wings and saw it fly away. I did not see the snake.

We endeavour to kill all snakes we see. On one trip we saw fourteen and killed nine of them, and thus undoubtedly saved many birds from destruction.

What I regard as the most interesting of all our experiences was brought about by E. W. Bunn hearing the call of a Spotted Nightjar (*Eurostopodus guttatus*) about 3 o'clock one afternoon. At first we were inclined to be doubtful about this nocturnal bird calling at this hour, but he knew the call well, so when he stated he was certain he had heard the bird we decided to search in the direction indicated by him. Soon one bird was put up, and then its mate was flushed, but no egg could be seen. We marked the place, and a few days later looked for the birds again but failed to find them. On the last day of our trip we decided to try again. They were not near the place we had marked, so we hunted wider afield, and eventually one bird was flushed from the ground. Our search was continued, and after a while one member of the party saw the other bird on the ground within a few feet of him. Silently he moved aside, and then called up the other members. For a few minutes we all watched the bird and no doubt each of us regretted the absence of a camera. Very quietly the bird was approached, and then it rose from the ground. Instantly there was a simultaneous shout of "an egg." Usually when a Spotted Nightjar is flushed its beautiful and noiseless flight is watched until the bird disappears, but on this occasion nobody watched the bird, for the pale green egg, marked with a few small black spots, lying on the ground without any attempt at a nest, was a sight some of us had not previously seen, and riveted the attention of all.

Undoubtedly two of the great essentials for close bird observing when a suitable place has been reached are quietness and lack of motion. And if movement is necessary it should be slow. Once when standing quietly near a nest containing young of Rufous Fantail (*Rhipidura rufifrons*) one of the parents perched against my wife's dress. On another occasion as I stood motionless on a log with my feet a few inches apart a Pilot-bird (*Pycnoptilus floccosus*) hopped along the log towards me, picked a mosquito from my trousers, and then hopped between my feet. Again, while sitting with my back against a tree, having just finished my lunch I was shaking the crumbs from a serviette when I noticed a Pilot-bird emerge from a tangle of scrub a few feet away. It came over and picked up crumbs while I held the serviette suspended about six inches above the bird.

Experience leads me to believe that the best way to preserve certain races of our birds will be permanently to reserve as national parks large areas of different classes of country. We already have some good examples such as those at Port Hacking in New South Wales, and at Wilson's Promontory and at Wyperfield in Victoria. It is of the utmost importance that in connection with reserves of this nature adequate means to prevent fire should be adopted, for, without doubt, so long as birds have their natural surroundings they have no worse enemy than fires. The avian inhabitants of the steep mountains and deep gullies are thoroughly safe for many years, but it is in localities which within the near future will be cleared for cultivation or partly cleared for grazing, unless so reserved, that early action is necessary. Of course when country is opened up and cleared, bird life is not totally destroyed. On the contrary, many forms become very much more numerous. But the birds of the bush and scrub cannot change their habits and exist on stubble or pasture land, and the specimens which cannot so exist are those which it is most desirable we should take measures to retain.

An Early Record of the Nesting of the Pacific Gull.—On Nov. 18, 1834, James Backhouse visited the settlement on Tasman's Peninsula, in a whale-boat which was provided by the Lieutenant-Governor of Tasmania. He says " the men dragged the boat across Ralph's Bay Neck, and rowed us over Frederick Henry Bay. We landed on a small basaltic island, off the Carlton, called Dumpling or Doughboy Island, which is a favourite name for a small island among sailors ; here, in a short time, our boat's crew collected about twelve dozen of the eggs of the Black-backed Gull. This Gull makes no nest, except a slight hollow among the grass, or in the light earth, in which it lays about three eggs, nearly as large as those of a Common Fowl, but more conical, and of a dirty green colour, speckled with irregular, dark spots."—H. STUART DOVE, W. Devonport, Tas.

Royal Australasian Ornithologists' Union 24th Annual Congress.

BY D. DICKISON, HON. GENERAL SECRETARY.

THE Twenty-fourth Annual Congress of the Royal Australasian Ornithologists' Union opened at the National Museum, Melbourne, Victoria, at 10 a.m. on Tuesday, September 29th, 1925. The President, Mr. J. A. Ross occupied the chair.

The delegates from the other States were welcomed by the President, who stated that there had been a lapse of eleven years since the last Congress was held in Melbourne. This long interval was due to the Great War, during which period none were held.

Apologies and greetings were received from the following members: Miss J. A. Fletcher (Tas.); Dr. A. Chenery (N.S.W.); Messrs. E. Ashby (S.A.); J. W. Mellor (S.A.); G. H. Barker (Qld.); C. A. Barnard (Qld.); P. V. Maloney (Qld.); N. W. Cayley (N.S.W.); R. Hall (Tas.); C. Lord (Tas.); and D. Thomson (Victoria).

The Minutes of the last Annual Meeting held at Rockhampton (Qld.) having been printed in *The Emu* were taken as read and confirmed.

In the absence of the General Secretary, the Assistant Secretary, Mr. N. J. Favaloro, read the Secretary's Report, which was received and adopted.* A brief discussion followed on the importance of the Union having its own permanent room, where its splendid library and collections of bird skins and eggs would be fully utilised by members. It was generally agreed that the most suitable locality for such a building would be East Melbourne, if it should be possible to acquire one there.

The Treasurer, Mr. Z. Gray, read the Balance Sheet†, which showed the finances of the Union to be on a sound basis. Mr. A. H. E. Mattingley in moving its adoption referred to Mr. Gray's valuable services as Treasurer. Other members spoke in eulogistic terms of the fine work rendered to the Union by Mr. Gray, and he was, also, congratulated on having held the position of Treasurer for nearly fifteen years.

It was decided to insert notices in *The Emu* directing the attention of members to the dates on which annual subscriptions, migration reports, and nominations are due.

The galley-proofs of the Check-list were passed round. Members expressed satisfaction with the full information given and the method of setting out. The Convenor of the Check-list Committee, Dr. J. A. Leach, outlined some of the chief changes made in vernacular names as well as in the scientific names. The need for economy in printing had caused as much abbreviation as possible. The preparation of the index is likely to occupy some time.

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*The Report is printed on page 153.—Editor.

†The Balance Sheet is printed on page 154.—Editor.

The President, Mr. J. A. Ross, read his popular and interesting presidential address entitled "The Recollections of an Oologist."* Mr. Ross exhibited photographs and pages from his Oological Catalogue, and these were much admired by the members present. The author was congratulated by Messrs. A. J. Campbell, A. H. E. Mattingley, and H. A. Purnell on his interesting field reminiscences.

The following candidates were unopposed and were declared elected :—

President : Mr. E. Ashby, M.B.O.U. *Vice-Presidents :* Mr. A. H. Chisholm, Dr. E. A. D'Ombrain, Mr. R. H. D. Stidolph.

(Mr. W. B. Alexander declined nomination as vice-president). *Hon. General Secretary :* Mr. D. J. Dickison. *Hon. Treasurer :* Mr. Z. Gray, L.C.A. *Hon. Editor :* Mr. W. B. Alexander, M.A. *Hon. Assistant Editor :* Mr. Neville W. Cayley. *Hon. Assistant Secretary :* Mr. N. J. Favaloro. *Hon. Press Correspondent :* Dr. Brooke Nicholls. *Curator of Skins :* Mr. E. P. Macleay. *Curator of Eggs :* Mr. J. A. Ross. *Curator of Photos :* Mr. S. A. Lawrence.

The position of librarian remained vacant as no member present was willing to undertake this office, which was, therefore, left to be filled by the Council.

The scrutineers, Messrs. Gray and Cohn, announced that the counting of the votes had resulted in the following members being elected to the Council :—Mr. F. E. Howe (Vict.); Mr. B. C. Bettington and Mr. T. Iredale (N.S.W.); Mr. W. G. Harvey and Dr. Spencer Roberts (Qld.); Prof. J. Burton Cleland and Mr. J. Neil McGilp (S.A.); Mr. Justice T. P. Draper, Mr. C. E. Orton and Mr. P. T. Sandland (W.A.); Mr. A. L. Butler and Mr. A. R. Reid (Tas.); Mr. W. W. Smith and Mr. A. S. Wilkinson (N.Z.).

The voting regarding the motion for the recission of the resolution relative to the International Museum of Comparative Oology carried at the previous Annual Meeting was : For Recission, 104 ; Against, 29.

After lunch the Congress was resumed when Mr. A. G. Campbell gave particulars of Mr. E. Ashby's paper on the Genus *Zosterops*.† Several skins were on exhibition and were fully examined by the members present. Mr. A. G. Campbell briefly outlined the range of each species, and commented on the seasonal changes of plumage. Appreciation was expressed by Dr. J. A. Leach of the valuable work Mr. Ashby has done in elucidating the various forms of this genus. A discussion followed which was chiefly centred on the species known as *Zosterops westernensis*. This bird was originally described and figured by Quoy and Gaimard in 1830 as being obtained at Western Port, but later investigations have failed to reveal the existence of this bird at that locality, and it must be assumed the specimen had been procured elsewhere and wrongly labelled.

Another paper by Mr. Ashby, on the genus *Strepera*‡ was read by Mr. A. J. Campbell. The distribution and colour of each species was fully reviewed. Several members joined in the discussion that followed.

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*The Address is printed on page 137.—Editor.

†The Paper was published in our last number, page 112.—Editor.

‡The Paper is printed on page 199.—Editor.

It was decided to convey to Mr. E. Ashby a vote of thanks for his two valuable and instructive papers.

When reading the paper on the genus *Strepera*, Mr. A.J.Campbell exhibited several specimens of this genus. He also showed other exhibits.*

A former resident of Melbourne, Mr. Robert Hall of Hobart, Tasmania, contributed a paper on the " Birds of Melbourne." Extracts from the paper were read by Dr. J. A. Leach in the absence of the author. Mr. Hall's extensive knowledge of the distribution of birds has been freely used in the compilation of his paper, and with the aid of maps the range of each species is fully explained.†

Mr. A. H. E. Mattingley in advocating the purchase of the Mathews library, read the following note : " One of the finest libraries in the world dealing with ornithology, especially with Australian avi-forms, and containing 5,000 works of reference is for sale. Volumes of almost all known works on the birds of the Commonwealth are included. Many of these works are out of print and unprocurable, whilst some of them are not to be found in any library in the Commonwealth. This library is of great scientific value and it should be purchased by the Commonwealth Government for the use of the nation and enshrined at Canberra. The present owner is Mr. Gregory M. Mathews, an Australian residing in England, who has recently had several lucrative offers made for its purchase from wealthy American Institutions. It would be a national calamity were it to be lost to the Nation. Professor C. MacKenzie and other leading scientists and research scholars, as also the Council of our Union, are all agreed that this library must not be allowed to be sold abroad. The Commonwealth Government should be asked to purchase it for the nation in default of some public spirited Australians unitedly subscribing the amount needed, said to be £5,000. To give you an opportunity to discuss this important matter I hereby move that : " The Commonwealth Government be again requested by the delegates of the various States attending this session to purchase the library of Mr. Gregory Mathews, containing 5,000 volumes of works of reference on ornithology, for the national library at Canberra."

Dr. J. A. Leach in seconding this motion stated that three years ago Mr. Mathews asked £3,000 for his library, but at a later date discovered that many of the books he possessed did not exist in other libraries outside the British Museum, he, thereupon, increased its value to £5,000. Some time ago the Commonwealth Government had the library valued, and has been willing to consider favourably the £3,000, but now that price has been increased it was possible that a different attitude might be taken. The motion was carried unanimously.

Messrs. A. G. Campbell and A. H. E. Mattingley moved and seconded the following motion, which was carried unanimously : " That this Congress invite the Council to consider and prepare a scheme for closer co-operation between the State members with a view to strengthening the Union in its activities : (A) Membership ; (B) Admission of Junior Members ; (C) Any other matter.

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*See page 151.—Editor.

†This Paper will appear in our next number.—Editor.

On September 30th a party of ornithologists visited the Botanical Gardens, where a pleasant morning was spent.*

On Thursday, October 1st, the Congress was resumed at 10.30 a.m. at the National Museum, when members of the Victorian Gun Clubs Association were present with the object of discussing the present game laws in this State. Mr. Woolcott related that one of the aims of his Association was for better protection of game birds during the close season. Wild cats were severely condemned as one of the worst enemies of bird life, and members of his Association are directed to destroy these pests whenever the opportunity presents itself. Mr. Woolcott further stated that the Association had a large and influential membership, and any member found shooting game out of season was " black-listed " and ostracised. The Secretary, Mr. Allan, referred to the wholesale destruction of bird life, particularly wild pigeons, through poisoned wheat laid for rabbits. It was considered that trap shooting is not so cruel as open shooting when wounded game often struggle into cover to die a lingering death.

Dr. Leach, Messrs. A. H. E. Mattingley, J. A. Ross, R. T. Littlejohns and N. J. Favaloro briefly contributed to the discussion.

Mr. Woolcott thanked the President of the R.A.O.U. for the cordial interview, and expressed the wish that similar conferences between the two Associations may be held at intervals.

Mr. W. R. Oliver, State Secretary for New Zealand, forwarded correspondence to this Union that had passed between the New Zealand Government and Natural History Societies, in which the latter bodies protested against the Auckland Islands being leased to pastoralists. According to the correspondence the New Zealand Government has recently leased the Auckland Islands for sheep grazing at the nominal rental of £40 per annum. It is related that years ago grazing had been permitted on other islands, and after doing irreparable damage to the fauna and flora, the sheep had either perished or were removed to the mainland. It was with the object of enlisting the support of this Union that Mr. Oliver had forwarded this correspondence.

Dr. J. A. Leach then moved : " That the Royal Australasian Ornithologists' Union supports the Natural History Societies of New Zealand in urging the Government to reserve permanently those islands south of New Zealand." This motion was carried unanimously.

On the suggestion of Mr. W. B. Alexander that the Assistant Secretary be called the State Secretary, it was moved by Dr. Leach : " That the Assistant Secretary be called the State Secretary for Victoria." Seconded by Mr. Z. Gray and carried unanimously.

The Editors' report was received and adopted.† In moving its adoption Dr. Leach complimented Mr. Alexander on succeeding in the difficult task of editing a journal, which, until recently, was printed in Melbourne.

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*A Report on this excurson appears on page 172.—Editor.

†The Report is printed on page 158.—Editor.

The report of the State Secretary for Tasmania was read.* It was received and adopted on the motion of Mr. Gray, seconded by Mr. Cohn.

The following motion was moved by Dr. Leach : " The Check List Committee of the R.A.O.U. requests Mr. W. B. Alexander to resume his place on the Printing Sub-Committee of the Check List." Carried.

Mr. N. W. Cayley, State Secretary for New South Wales, submitted his annual report,† which, with the exception of paragraph 14, was received and adopted. The paragraph to which exception was taken complained of the meagre representation of New South Wales members on the Council, but this year's elections have altered the position as they now have two Vice-Presidents and two Members of Council. The appreciation expressed by Mr. Cayley of the hospitality shown to ornithologists by Mr. Farnell, who had recently erected a cabin in the National Park, was further supported by Mr. A. H. E. Mattingley, who moved : " That a letter be sent by this Union to Mr. Farnell expressing appreciation of his good work towards ornithologists." Carried unanimously.

It was decided that the Congress in 1926 should be held in Sydney.

Mr. A. J. Campbell moved a vote of thanks to past office-bearers for their services during the past year ; and expressed best thanks to the Trustees of the National Museum, coupled with the name of Mr. J. A. Kershaw, for allowing the Union the use of the room and specimens for the Congress. Seconded by Rev. C. J. Lang and carried unanimously.

The President, Mr. J. A. Ross, then declared the Congress closed, but Mr. E. Ashby was allowed the privilege to open a discussion on his papers at the Camp-out.

Exhibits.

MR. A. J. CAMPBELL exhibited supposed eggs of the White-eared Flycatcher (*Monarcha leucotis*) which most resemble those of the Rufous Song-Lark (*Cinclorhamphus mathewsi*). They were taken by W. T. Bailey, Oct. 15, 1887, at Pimpana, South Queensland. Nest " built in fork of Scrub Myrtle."‡

Description.—Clutch three ; short ovate in shape ; texture of shell fine ; surface very glossy ; colour pinkish white, somewhat heavily spotted and blotched with rich chocolate, or madder brown, and violet slate, or purplish grey. Dimensions in inches : (1) .81 x .62, (2) .8 x .6, (3) .77 x .61.

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*The Report is printed on page 156.—Editor.

†The Report was printed in our last issue, page 127.—Editor.

‡For description of a nest, found by Mrs. L. M. Mayo and Miss H. Geissmann, see *Emu*, xxiii., p. 30, pl. 7. Although birds were observed building the structure, unfortunately it was deserted before eggs were laid.

Mr. Campbell also exhibited :—]

(1) On behalf of Mr. J. W. Mellor, Adelaide, a skin of the *Zosterops* from Capricorn Islands ? *Z. tephropleura*, Gould.

(2) On behalf of Mr. F. L. Berney, Barcarolle, Longreach, Queensland, a skin of the Chestnut-breasted Quail-Thrush (*Cinclosoma castaneothorax*), a male, the first male procured since Gould described and figured the species in the *Proc. Zool. Soc.*, 1848. (The actual tone of the breast is *hazel* as in the upper figure in Gould's plate, *Suppl.*, No. 32).

This re-discovery is of much ornithological importance and was made in a simple way. Under date of Sept. 7th, 1925, Mr. Berney writes : " Riding home a few evenings ago I chanced on a dead bird that had flown against a dog-netted fence and killed itself and closer inspection showed it to be, I believe, Gould's Chestnut-breasted Ground-Thrush."

(3) On behalf of Dr. W. Macgillivray, Broken Hill, N.S.W., a female of the foregoing species which he procured near Adavale, Charleville, Queensland, Aug. 27, 1923, and which materially supports the view that this is a distinct species and not a sub-species of the smaller, restricted, desert species, *C. cinnamomeum*.*

Description of Specimen.—Crown and back hair-brown, the back with darker centres ; scapulars and rump russet, centred with fuscous ; wing-coverts blackish-brown, tipped white ; wings fuscous ; inner secondaries edged tawny ; upper tail-coverts and centre tail-feathers hair-brown ; remainder of tail black, tipped white ; brows and throat buff ; breast drab ; abdomen mainly cinnamon brown, but white in centre ; under tail-coverts brown, tipped white. " Irides brown, bill black, legs leaden " (Macgillivray). Dimensions in millimetres : Length, 220; wing, 98 ; culmen, 16 ; tarsus 25 ; tail, 94.

(4) On behalf of Mr. E. Ashby, Adelaide, specimens of Crow-Shrikes (*Strepera*) in support of his paper on this genus† :—(a) One *S. arguta*, Gld. from the Great Lake district, Tasmania, and (b) Two *S. intermedia*, Sharpe, from Warunda, near Port Lincoln, S.A.

A Tree Ring-barked by Galahs.—The accompanying photographs show a tree in a branch of which Galahs (*Kakatoe roseicapilla*) have a nest. The birds have for years been eating the bark and have stripped off a ring right round. Probably this is in order to keep goannas or other marauders from the nest, as the surface from which the bark has been removed is very slippery.—R. W. TREWIN, R.A.O.U Kalpienung, *via* Nullawil, Vict.

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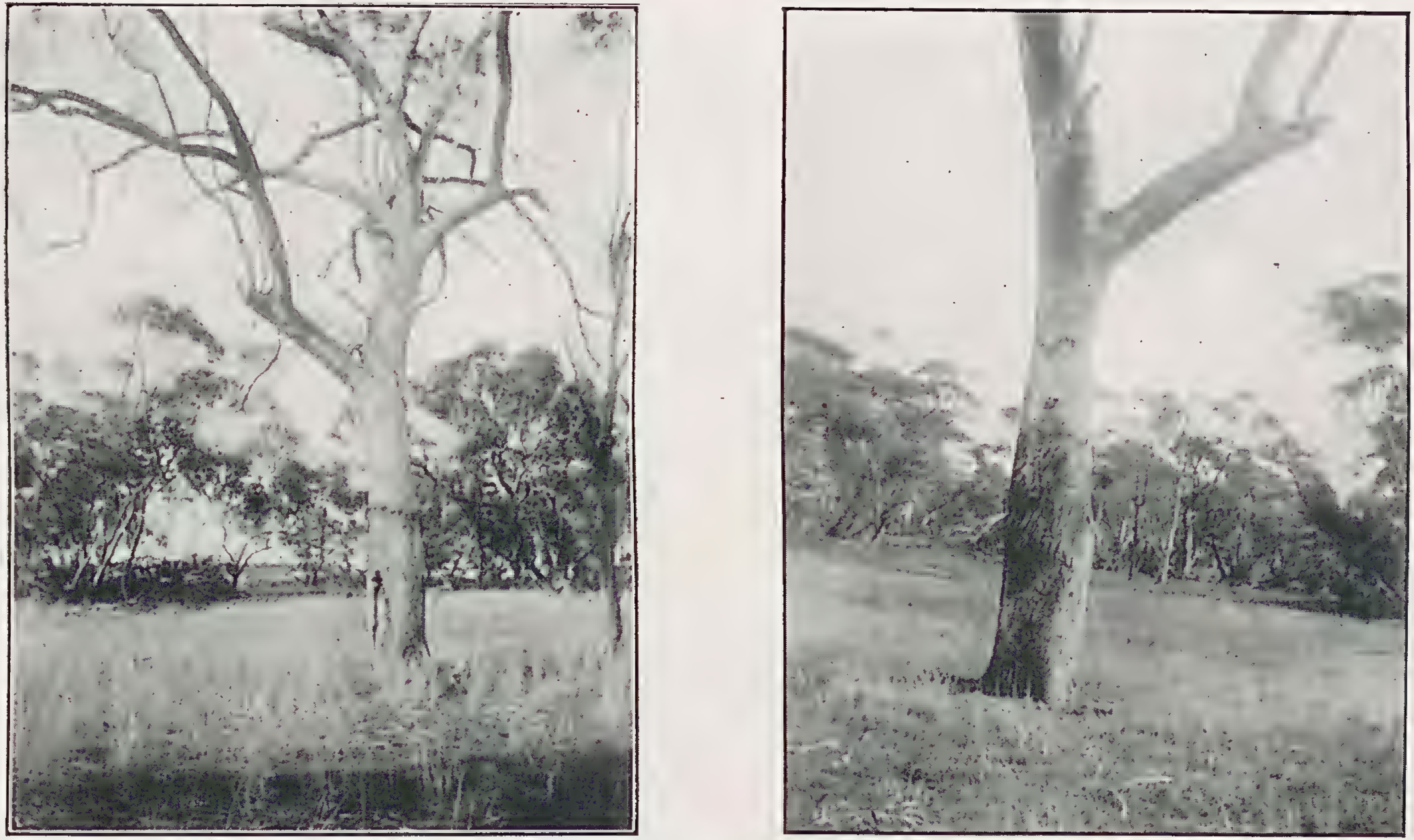
*The only female of this species previously known was obtained in Central Australia on the Horn Expedition and described by North, *Nests and Eggs*, vol. 1, p. 330.—Editor.

†See page 199—EDITOR.



TREES RING-BARKED BY GALAHS.
Photos. by R. W. Trewin.

NATIONAL MUSEUM MELBOURNE

ANNUAL REPORT OF THE HON. GENERAL SECRETARY.

I have much pleasure in presenting to members of the Royal Australasian Ornithologists' Union the twenty-fourth annual report.

During the year 43 new members were enrolled: Victoria, 12; New South Wales, 17; Queensland, 7; South Australia, 1; New Zealand, 2, and Foreign, 4. Resignations have numbered 24, deaths 3, while 18 members have been removed from the roll through failing to pay their subscriptions. The total members on the roll are 520, made up as follows: Victoria, 178; New South Wales, 143; Queensland, 60; South Australia, 34; Western Australia, 14; Tasmania, 24; New Zealand, 17; British 37; Foreign, 29, and exchanges, 21, which make the total 557. To meet the future requirements the copies printed of *The Emu* have been increased from 575 to 625.

The Council deeply regretted the loss by death of the following esteemed members: Mr. W. Laidlaw, B.A., Mrs. Norton, New South Wales, and Mr. W. L. May, Tasmania.

The cost of producing *The Emu* in Melbourne became so great that the Council accepted the advice of the editor, and had the printing of it transferred to Sydney. Besides being nearer to the editor, the cost of printing will be considerably reduced.

The Union is still occupying a room at 376 Flinders St., although efforts have been made unsuccessfully to obtain a more commodious room at a similar rental. The Council has been desirous of obtaining its own permanent building, but owing to the high price of property a building in the city seems out of the question. Efforts have been made from time to time to secure a suitable place in a near suburb but so far have proved unsuccessful.

During the last six months conversaziones have been held regularly every month in Melbourne. While the quarterly meetings took place at the National Museum, the others were held in a room, hired for the purpose, adjoining the Union's room in Flinders Street. The thanks of the Council are due to Messrs. A. H. E. Mattingley, J. A. Ross, A. G. and A. J. Campbell for interesting lectures given at these meetings.

Bird protection is still receiving vigorous attention throughout Australia. A recent deputation to the Hon. The Chief Secretary of Victoria for better protection was well attented by prominent ornithologists from this Union, and it is hoped that the new Game Bill, now passing through the Victorian Parliament, will prove beneficial to the birds.

The financial position is sound and satisfactory, as set out in the Treasurer's Balance Sheet, which has been duly audited and certified correct by the auditors.

D. DICKISON, *Hon. Secretary.*

BALANCE SHEET

RECEIPTS.

Subscriptions—		
Arrears	£75 19 0	
Current	438 18 0	
Advance	27 15 0	
		£542 12 0
Unpaid Cheque		5 13 6
Sales "Emu" £13/4/1; Covers £5/3/4; Blocks £19/9/10; Reprints £4/1/9; Interest £13; Index £3/15/0; Exchange £5/7/2; Stamps 10/-		64 11 2
Illustration Fund		11 13 0
Debenture Redeemed		100 0 0
Trust Fund Interest		60 0 0
		£784 9 8
Cr. Balances 1/7/24—		
General Account	£161 9 0	
Illustration Account	1 11 2	
		163 0 2
		£947 9 10

ASSETS.

National Bank Cr. Balance		£31 11 0
Savings Bank Cr. Balance		180 0 0
Subscriptions, Arrears est. good	£35 14 0	
Less Prepaid	33 12 0	
		2 2 0
Library		450 0 0
Furniture and Specimens		350 0 0
Blocks (estimated at)		10 0 0
"Emus" (estimated at)		50 0 0
Tent, Material, Punch and Register		3 17 6
Reserve Fund, Commonwealth 6 p.c., 1930		100 0 0
Trust Fund, Commonwealth 6 p.c., 1930		1000 0 0
		£2177 10 6

Melbourne, 1st July, 1925. Z. GRAY, L.C.A., *Hon. Treas.*

Year Ended June 30th, 1925.

EXPENDITURE.

"Emu," Vol. 24—Printing	£407	19	3			
Illustrations	32	14	0			
Postage	22	15	3			
Reprints	35	6	9			
				£498	15	3
Annual Meeting				17	0	7
Postage £12/12/2; Printing £6/12/6; Exchange £5/0/11; Typing £2/15/9; Covers £2/6/-; Commission £2/7/8; A/c. Fee 10/-				32	5	0
Unpaid Cheques £5/13/6; Notary £1/3/0				6	16	6
Reserve Fund, Commonwealth 6 p.c. 1930, Debenture and Interest				102	12	6
Room Rent £52/15/0; Light 14/3; Carrier 10/-; Library £2/3/-; Insurance £3/4/10				59	7	1
				£716	16	11
Trust Dr. Balance 1/7/24				19	1	11
Savings Bank Cr. Balance 30/6/25				180	0	0
General Fund Cr. Balance	50	0	0			
Illustration Fund Cr. Balance	Nil					
Trust Fund Dr. 30/6/25	18	9	0			
				31	11	0
				£947	9	10

LIABILITIES.

NIL

Audited and certified correct.
9/9/25.

JAMES BARR, F.C.P.A., S. A. LAWRENCE,
Hon. Auditors.

State Secretary's Reports.

TASMANIA.

Owing to the appointment of State Advisory Boards acting on behalf of the Commonwealth Government the export of birds and animals has been placed on a much better footing than in previous years. The Tasmanian Committee has held many meetings during the year in order to deal with matters relating to the fauna of the island state. " The Animals and Birds Protection Act " of Tasmania is administered by the Police Department and it is a pleasure to be able again to report the harmonious relations existing between the officials of the departments and the various societies and committees interested in our native fauna.

Another matter which can be recorded with satisfaction is the great public interest in the National Park at Mount Field. This area of 38,500 acres is an absolute sanctuary for our animals and birds.

The extension of the Beaumaris Zoo has also served to assist in awakening the public to the necessity and value of our fauna.

Generally speaking therefore, it may be said with safety that although there has been no outstanding event of importance during the past year, a very general measure of progress was achieved and the position generally shows a marked improvement upon that of some years ago.

CLIVE E. LORD.

NEW ZEALAND.

The chief ornithological events that have taken place in New Zealand during the past year pertain to the activities of the New Zealand Native Bird Protection Society, and of its Secretary, Captain E. V. Sanderson, in particular. The Society has now a large membership and it is pleasing to note the enthusiastic interest taken in birds by school children. All members receive the publications of the Society, which appear every three months, and contain much information of interest and value to bird lovers.

The annual general meeting of the Society was held in Wellington on the 8th May, 1925. The following office bearers were appointed :

President : The Hon. Sir Thos. Mackenzie, G.C.M.G., M.L.C.

Vice-Presidents : Sir Geo. Fenwick, J. P. Firth, C.M.G., Gilbert Archey, H. Guthrie-Smith, Jas. Drummond.

Committee : Messrs. Douglas McLean, H. Hamilton, T. Cockroft, R. H. D. Stidolph.

Hon. Secretary : Capt. E. V. Sanderson.

The appointment of Mr. A. S. Wilkinson as caretaker of the Kapiti Bird Sanctuary has already been recorded in *The Emu.* It is satisfactory to note also that Mr. R. Nelson has been re-appointed to the Little Barrier Island Bird Sanctuary, and that Mr. W. M. Fraser has been made honorary caretaker of the Hen Island Scenic Reserve. Important islands that require further protection are those to the south of New Zealand, safeguarded mainly by their inhospitable climate. Campbell Island has suffered much from whalers and sheep farmers, but it is hoped that such a fate can be prevented from overtaking the Auckland Islands, a portion of which is at present leased for sheep farming. These islands contain a unique collection of birds and plants, and their destruction would be nothing short of a national disaster.

An expedition undertaken by Messrs. W. R. B. Oliver and H. Hamilton of the staff of the Dominion Museum, and Mr. W. M. Fraser, Whangarei Harbour Engineer, visited the Poor Knights and Hen Islands in December last, and found the birds plentiful, except on one islet where pigs were running wild. An account of the bird life of these islands by Mr. H. Hamilton is appearing in vol. 8 of the *New Zealand Journal of Science and Technology.*

The Chatham Islands also should receive consideration with a view to the better protection of the plant and bird life, as they contain a number of interesting forms. An expedition organised by the Otago Institute and Canterbury Philosophical Institute, visited the group in December and January last, and a report on the bird life by Messrs. G. Archey and C. Lindsay has been published in vol. 2 of the *Records of the Canterbury Museum.*

On June 24th, 1925, the ordinary monthly meeting of the Wellington Philosophical Society was devoted to a discussion on birds. The chair was occupied by the president, Mr. A. C. Gifford, and there was a good attendance of members. The proceedings were introduced by Mr. W. R. B. Oliver, who gave a general account of the avifauna of New Zealand and its relationships to those of other countries. The other speakers were Messrs. Johannes C. Andersen, on bird song, H. Hamilton, on extinct birds, R. H. D. Stidolph, on the birds of Wellington, Captain E. V. Sanderson, on the conservation of wild life in New Zealand, and Mrs. M. M. Moncrieff, on bird protection. A series of lantern slides was shown.

A nearly complete skeleton of a large species of Moa was found in a cave near Waikaremoana recently, and was procured for the Dominion Museum, Mr. Hamilton visiting the locality for the purpose.

Two books dealing with the birds of New Zealand have appeared during the past year. The fourth edition of Hutton & Drummond's *Animals of New Zealand* is practically a reprint of the third, though a section on introduced birds has been added. Quite recently Mrs. M. M. Moncrieff issued a small book entitled *New Zealand Birds, How to Identify Them,* designed to assist amateurs in naming the species usually met with.

W. R. B. OLIVER.

Report of the Editors of *The Emu* for the Year 1924-5.

The numbers of articles and photographs contributed to *The Emu* during the year have been much smaller than for several years previously. In spite of the fact that the whole of the January number and part of the April number was devoted to the annual meeting and camp-out, other articles were insufficient to fill the space available and vol. xxiv. was eight pages short. All notes received, which the editor thought suitable, were published. A few short articles and photos which did not appear to him up to standard were submitted to the printing committee for its opinion, and in each case were rejected by that committee.

Matter received in time for the July number was only sufficient to make a part of 48 pages (instead of 80), though for the October number sufficient contributions were sent in to make a part of standard size. As time goes on it is inevitable that the older contributors should gradually fall out but unless younger ornithologists take up the task it will be impossible to retain the Union's magazine at its former high level.

Mr. N. W. Cayley informed the editor at the end of last year that he was prepared to paint coloured pictures of birds for *The Emu* free of charge. This fine offer was gratefully accepted and coloured plates from his pictures appeared in the January and July numbers. Others will appear in future numbers.

The Melbourne printers, Messrs. Keating-Wood, having informed the editor that they were losing money by the production of the magazine at the price for which they had contracted, it became obvious that a change of printers was again necessary. Quotations were obtained from printers in Sydney and Brisbane and it was found that prices in Sydney were decidedly lower than in Melbourne or Brisbane. The contract was given to Messrs. Simmons Ltd. of Sydney and should result in a very material saving in the Union's bills for printing.

As had been anticipated the appointment of a new editor and assistant editor, the former of whom lived so far from the city where the magazine was printed, resulted in considerable delay in the appearance of the January number. The assistant editor, Mr. D. F. Thomson, left Melbourne and in consequence resigned his position before the appearance of the April number, which was again unduly delayed. The change of printers and the loss of several proofs in the post also resulted in the late appearance of the July number, but it is hoped that changes are now over and that future numbers will appear at the proper time.

Members of the R.A.O.U. may rest assured that the editors will do everything possible to retain the high standard of the Magazine and to ensure its punctual issue, but they can hardly do so unless they receive more contributions of articles and photos than they have done during the past year.

W. B. ALEXANDER (*Editor*).
NEVILLE CAYLEY (*Assistant Editor*).

List of Members of the Royal Australasian Ornithologists' Union, 1925.

(Any member whose name or address is incorrect should notify the Hon. Secretary at once. Street numbers are desired in all cases).

PATRONS :

Their Majesties King George V. and Queen Mary,
Buckingham Palace, London, England.

CORRESPONDING MEMBERS.

1913 Hornaday, Dr. W. T., Director, Bronx Zoological Park, New York, U.S.A.
1904 Ridgway, Prof. Robert, Curator, Division of Birds, National Museum, Washington, D.C., U.S.A.
1912 Shufeldt, Dr. R. W., Randall Mansions, 1900 Lamont St. N.W., Washington, D.C., U.S.A.

HONORARY MEMBERS.

1901 Campbell, A. J., C.M.B.O.U., F.A.O.U., " Bulgaroo," 18 Wellington Rd., Box Hill, Victoria.
1905 Leach, Dr. J. A., C.M.B.O.U., C.F.A.O.U., Education Department, Melbourne, Vict.
1901 Ryan, Surgeon-General Sir Charles, C.B., Melbourne Club, Melbourne.
1901 White, Capt. S. A., C.M.B.O.U., C.F.A.O.U., " Wetunga," Fulham, S.A.

LIFE MEMBERS.

1906 Austin, Thos. P., " Cobborah " Estate, Cobborrah, N.S.W.
1901 White, H. L., C.F.A.O.U., " Belltrees," Scone, N.S.W.

FULLY PAID MEMBERS.

1908 Dove, H. S., F.Z.S., " Roslyn," West Devonport, Tasmania.
1905 Gray, Z., 376 Flinders St., Melbourne, Vict.
1920 Phillips, Montague A., M.B.O.U., 57 St. George's Square, London, S.W., England.
1901 Pike, Miss A., 376 Flinders St., Melbourne, Vict.
1923 Wood, Dr. Casey A., c/o Library of Ornithology, McGill University, Montreal, Canada.

ORDINARY MEMBERS.

VICTORIA.

1904 Anderson, Lt.-Col. T., Box 10, Ballarat.
1924 Ansell, E. L., 24 Royal Crescent, Camberwell.
1924 Ansell, H., 24 Royal Crescent, Camberwell.
1908 Archer, R. H., " Ryecroft," Lyndhurst.
1919 Armit, W. Duke, " Bindi " Station, Bindi.
1902 Armstrong, W. J. T., Hexham Park, Hexham.
1925 Arnold, N. A. R., 1 Langridge St., Middle Park.
1922 Austin, A. S., " Eilyer," Irving Rd., Toorak.
1921 Austin, C. N., Church of England Grammar School, Domain Rd., South Yarra.
1904 Austin, E. G., Borriyallock, Skipton.

1909 Barr. Jas., F.C.P.A., 418 Little Collins St., Melbourne.
1901 Barrett, Chas. L., " Maralena," Maysbury Avenue, Elsternwick.
1910 Barrett, Sir James W., C.M.G., 105 Collins St., Melbourne.
1919 Barry, A. M., B.A., Box 38, Kerang.
1921 Beck, H. N., " Altamira," Webster St., Oakleigh.
1910 Bell, Thos., State School, Porepunkah.
1924 Bell, W. M., Geelong Club, Geelong.
1918 Blakie, Dr. J. L., 202 Union Rd., Surrey Hills.
1919 Borch, C. H., " Ulysses," 70 Elphin St., Newport.
1912 Bowie, Miss Helen, 61 Collins St., Melbourne.
1919 Boyd, Capt. H. J., Bay Road, Sandringham.
1924 Boyle, J., 196 Miller St., North Fitzroy.
1924 Brazenor, C., 52 Denbigh Road, Armadale.
1910 Brew, Major Henry, F.Z.S., " Mintaro," Lyons St., Ballarat.
1909 Buckland, L., Camperdown.
1918 Bull, Dr. R. J., 42 Boundary Road, Surrey Hills.
1919 Bunn, E. W., 16 Moorehouse St., East Camberwell.
1925 Bunn, H. W., 16 Moorehouse St., East Camberwell.
1923 Bush, Miss M., 251 View St., Bendigo.
1921 Bussell, G. H., " Green Gables," Warburton.
1923 Butchart, Mrs. L. L., 36 Walsh St., South Yarra.

1901 Campbell, A. G., J.P., Kilsyth.
1921 Clark, Dr. J. Kenneth, 156 Collins St., Melbourne.
1918 Clinton, H. F., 605 Flinders St., Melbourne.
1921 Cohn, M., 29 Hope St., Bendigo.
1909 Cole, C. F., Faithful Street, Wangaratta.
1924 Collins, G., Patyah, Edenhope.
1920 Collins, H., Edenhope.
1922 Crawley, R. L., Warrnambool.
1924 Cunningham, W., c o. Mrs. Gillies, Iris Road, South Camberwell.
1916 Currie, Miss C. C., " Brandie Braes," Lardner.
1921 Currie, Edwin, " Gala," Lismore.

1921 Dean, Wm. R., A.R.C.A. (London), Technical School, 140 High St., Prahran.
1920 De Lany, I. W., c/o. 128 Kooyong Road, Malvern.
1901 de Little, E. R., South Caramut.
1902 Dennis, G. L., " Eeyeuk," Terang.
1924 Dennis, R. F., " Eeyeuk," Terang.
1917 Dickison, D., 5 Rock Brook Rd., East St. Kilda.
1909 Dyer, G. A., " Harpley," 383 Barker's Road, Kew.

1923 Edgar, O. W., " Nerrinyerie," Harrow.
1920 Ellis, E. W., 14 Puckle St., Moonee Ponds.

1924 Falconer, G. V., Glen Iris Rd., South Camberwell.
1923 Favaloro, N. J., Queen's College, Carlton.
1923 Fehrer, F., " Claughton," 41 Malvern Rd., Malvern.
1914 Finlay, G., 110 Collins St., Melbourne.
1924 Fleay, D. H., 411 Armstrong St., Ballarat North.
1921 Forster, Rev. P. L., Ivanhoe.

1923 Galbraith, M., " Dunedin," Tyers.
1915 Gates, Wm. F., M.A., " Cullymont," Selwyn St., Canterbury.
1924 Givens, T. V., 19 Logan St., Canterbury.
1901 Graham, G., Scott's Creek.
1921 Greenwood, Dr. E. Freeman, 91 Collins St., Melbourne.
1923 Grimwade, Gordon, " Drusilla," Macedon.
1908 Grimwade, W. Russell, 342 Flinders Lane, Melbourne.

1901 Hall, Jas., 17 Queen St., Melbourne.
1923 Hamer, W. A., 21 Jones' Lane, 118a Lonsdale St., Melbourne.
1924 Hamilton, Rev. J. P., Cavendish.
1925 Harper, Miss Joan, " Noojee," Avalon Rd., Armadale.
1921 Healy, Mrs. T. V., " Ingoldsby," 27 Albert Crescent, Surrey Hills, P.D. 29.
1901 Hedding, J., " Toowong," 39 Monomeith Avenue, Canterbury.
1901 Hill, J. A., " Correa," Wakeham St., Stawell.
1923 Hogan, J., 30 Type St., Richmond.
1901 Hood, R. A. D., " Merrang," Hexham.
1917 Hook, C. C., " Cotswold," Sale.
1902 Hope, Dr. W. W., " Elliminook," Birregurra.
1902 Horne, Dr. G., 61 Collins St., Melbourne.
1913 Horne, Mrs. G., 61 Collins St., Melbourne.
1920 Howe, A., 225 High St., Northcote.
1904 Howe, Frank E., C.M.Z.S., Bryson St., Canterbury.
1917 Hurst, H. E., " Eumeralla," 35 Skene St., Geelong.
1901 Hutchinson, Mrs. J. S., 376 Flinders St., Melbourne.
1919 Hutton, Miss Lal., " Moonthalie," Miller Grove, Kew.
1922 Hyem, E. L., " Hartpury," Milton St., St. Kilda.

1909 Israel, Mrs. J. W., " Eshcol," 58 Sackville St., East Kew.

1924 Jennings, J. D., B.Ag.Sc., Frankston.
1922 Joske, S. B., C.T.A., 318 Flinders St., Melbourne.

1911 Keep, Francis, 339 Batman St., West Melbourne.
1923 Kellaway, Dr. C. H., Research Institute, Melbourne Hospital.
1901 Kershaw, J. A., F.E.S., National Museum, Melbourne.
1921 Knight, John, 33 Chester St., Oakleigh.

1915 Ladwig, C. F., 154 Williams Rd., Prahran.
1925 Lang, Rev. C. L., Main Road, Doncaster.
1921 Lang, T. S., " Dunbeth," Carmichael St., Ivanhoe.
1923 Latham, A. T., 26 Scott St., St. Kilda.
1909 Lawford, W., Benalla.
1915 Lawrence, S. A., Garrell St., Caulfield.
1922 Lewis, Dr. J. M., Boundary Rd., Burwood.
1917 Lindner, J., Murphy St., Wangaratta.
1903 Lindsay, Mrs. James, " Quamby," Woolsthorpe.
1901 Linton, Miss B. M. H., " Ayleslea," Maffra.
1917 Liscombe, H. G., 53 Queen St., Melbourne.
1912 Littlejohns, R. T., " Kiewa," Holroyd Ave., East St. Kilda.
1910 Long, Dr. W. J., " Carrick," 89 Short St., Bendigo.
1914 Lorimer, J. E., Boronia St., Canterbury.

1919 Mann, J. G., " Harbury," Frankston.
1901 Mann, S. F., " Lawrenny," Caramut.
1921 Matheson, N. McD., " Moranghurk," Lethbridge.
1901 Mattingley, A. H. E., C.M.Z.S., C.F.A.O.U., " Koonawarra," Turner St., South Camberwell.
1919 Menzies, J. L., 89 Queen St., Melbourne.
1925 Meyer, F. H., 54 Warburton Rd., Canterbury.
1923 Mickle, Mrs. G. S., " Talangour," Robertson St., Casterton.
1914 Molesworth, J. M., " Ballart," Morrison.
1916 McArthur, Dr. A. N., " Kuungil," Boundary Rd., Toorak.
1925 McHutchison, E. J., 2 Coppin's Grove, Hawthorn.
1924 Mackenzie, A. J., 56 The Avenue, Moreland.
1921 Mackenzie, Capt. H. P., Trawalla.
1901 MacLean, C. W., " St. Leonards," 56 Cole St., Elsternwick.
1923 Macleay, E. P., National Research Institute, Healesville.
1921 McLennan, Miss Rebie, " Ellisland," Pira.
1916 McLennan, W., " Claremeade," Casterton.
1924 MacMillan, T. Lindsay, c/o. G. West, Elmhurst.

1905 Nicholls, Dr. E. Brooke, 376 Flinders St., Melbourne.

1922 Nicholson, A. E., 26 Rosella St., Murrumbeena.

1922 Osborne, E. C., " Kergunyah," Cardinia.

1920 Parker, C., Tivoli Place, South Yarra.
1925 Peet, J. F., 18 Cumming St., West Brunswick.
1913 Purnell, H. A., " Kiwi," 136 Noble St., Newtown, Geelong.
1918 Pye, H., Agricultural College, Dookie.

1914 Ricardo, E., " Thurla," Avalon Rd., Armadale.
1922 Roadknight, A. H., The Esplanade, Drumcoudra, Geelong.
1916 Robertson, Miss Sheila M., " Mooramong," Bay St., Mordialloc.
1905 Ross, J. A., 54 Claremont Avenue, Malvern.
1918 Russell, J. K., " Barunah Plains," Hesse.

1917 Sargood, Ian D., " Egoleen," Clendon Road, Toorak.
1912 Schultz, B., " Hillcroft," Sheep Hills.
1909 Scott, Andrew, Elmore.
1925 Selby, A. D. c/o. L. E. Loch, Box 9, Horsham.
1915 Simson, C. E., " Roseneath," Casterton.
1913 Slaney, H. B., " The Ranch," Moorooduc.
1924 Somerset, H. B., Trinity College, Parkville.
1918 Spencer, Sir Baldwin, K.C.M.G., National Museum, Melbourne.
1925 Stanley, F., 8 Drysdale St., Malvern.
1902 Stephen, W. J., 28 Robinson's Road, Hawthorn.
1921 Stone, A. H., c/o. Union Bank, Bendigo.
1911 Stuart, L., 250 Flinders St., Melbourne.
1919 Stubbs, Mrs. E. G., Beaconsfield Parade, South Melbourne.
1920 Stubbs, Miss L. L., 21 Logan St., Canterbury.
1910 Sullivan, A. M., 34 Finlayson St., Malvern.
1909 Sutton, Dr. C. S., 683 Rathdown St., North Carlton.
1911 Symonds, E. U., " Euroma," 3 Sea View Crescent, Black Rock.

1924 Taylor, H., " Redclyffe," Rodney St., Bendigo.
1924 Taylor, L., " Barnool," 8 Cromwell Rd., Hawksburn.
1917 Thomson, D. F., " The Cottage," Oak St., Canterbury.
1923 Tingate, C., 124 Hope St., Geelong West.
1922 Tippett, Rev. W. C., " Shenton," Ryrie St., Geelong.
1918 Travers, Lieut. R. E., 376 Flinders St., Melbourne.
1914 Trescowthick, C., 324 Hoddle St., Collingwood.
1923 Trewin, R. W., Kalpienung.

1918 Voege, Roy, " Roseneath," Casterton.

1921 Walters, Rev. W., Church of England, Murrayville.
1919 Watson, H. J. L., 344 Latrobe Terrace, Geelong.
1924 Watson, J. D., Technical School, Warrnambool.
1923 Webb, Rev. T. T., Methodist Parsonage, Ararat.
1924 Weller, Rev. J. R., Seamen's Mission, Melbourne.
1924 Wertheim, Mrs. H., Whernside Avenue, Toorak.
1922 Wighton, J., 53 Yarra St., Geelong.
1916 Wilkie, A., Zoological Gardens, Parkville.
1920 Wilkinson, Dr. W. S., 156 Collins St., Melbourne.
1909 Wilson, C. W., Scott's Hotel, Melbourne.
1909 Wilson, F. E., 22 Ferncroft Avenue, East Malvern.
1908 Wilson, Major H. W., M.C., O.B.E., 630 Inkerman Rd., Caulfield.

NEW SOUTH WALES.

1925 Abbott, R., Dungog.
1922 Anderson, Dr. C., M.A., Ph.D., Australian Museum, College St., Sydney.

1925 Bartlett, Miss V. A., " Talbingo," Glen View St., Greenwich.
1915 Bettington, B. C. J., " Terragong," Merriwa.
1917 Bettington, J. H. Senr., " Terragong," Merriwa.
1925 Borthwick, A., Dungog.
1923 Bradley, John, c/o. St. Kilda Hotel, Armidale.
1918 Brennan, Wm., Box 60, Moree.
1923 Brown, B. A., " Eglinton Cottage," Bathurst.
1922 Brown, R. E. D., 177 Castlereagh St., Sydney.
1924 Bryce, E. J., Box 375, Sydney.
1925 Buckle, F., 84 Pitt St., Sydney.
1922 Bull, C. C., " Tarbert," Moree.
1920 Burge, G., " Palo Alto," Inverell.
1908 Burrell, Mrs., 19 Doncaster Avenue, Kensington, Sydney.
1907 Burrell, H., 19 Doncaster Avenue, Kensington, Sydney.

1925 Cameron, Mrs. K., " Cairnsmore," Dungog.
1921 Cameron, L. D., Hilly St., Mortlake.
1919 Carter, H. J., " Garrawilla," Kintore St., Wahroonga.
1918 Cayley, N. W., " The Grange," 217 Stanmore Rd., Stanmore.
1921 Chaffer, N., Boundary St., Roseville, Sydney.
1925 Chalmers, Mr. Dungog.
1901 Chenery, Dr. A., " Yampa," Wentworth.
1907 Chisholm, A. H., c/o. " Daily Telegraph," Sydney.
1922 Chisholm, C. W., " Myreno," Woodward Avenue, Strathfield.
1910 Chisholm, Dr. E. C., Comboyne.
1923 Church, A. E., F.R.G.S., British Pacific Science Expedition, c/o. F. E. De Groote, 148 Phillip St., Sydney.
1918 Clee, T. H., Chester St., Moree.
1903 Coles, C., 47 Castlereagh St., Sydney.
1921 Croft, H. M., Salisbury Court, Uralla.

1923 Dangar, R. H., Turee, Cassilis.
1924 De Warren, J. J., Wallarobba.
1909 Dobbyn, Dr. G. H., Cummins St., Broken Hill.
1923 D'Ombrain, A. F., " Hylacola," Somersby, Gosford.
1901 D'Ombrain, Dr. E. A., 205 Macquarie St., Sydney.
1925 Doyle, Miss E., Hooke St., Dungog.
1924 Ducker, L. A., " Normanhurst," Springdale Rd., Killara.
1919 Dunbabin, T., 19 Musgrave St., Mosman.
1925 Duncomb, D. A., " Old Warrah," Willow Tree.

1923 Edwards, Rev. C. C., Singleton
1918 Edwards, H. V., " Old Rectory. Tathra Rd., Bega.
1913 Enright, W. J., West Maitland.,"

1922 Falkiner, J., Singleton.
1917 Falkiner, Mrs. Otway, Widgiewa Siding, North Boonoke.
1910 Ferguson, Dr. E. W., " Timbrebongie " Gordon Rd., Roseville
1911 Ferguson, J. A., 167 Phillip St., Sydney.

1920 Gibson, Chas. G., "Maltorendi," Grosvenor Rd., Wahroonga.
1909 Gilbert, P. A., " Dacelo," Colin St., Lakemba.
1925 Gilchrist, Mrs., Dowling St., Dungog.
1920 Gogerley, J. F. H., " Ellerslie," Wallis Lake, Forster.
1920 Goldfinch, G. McA., " Lyndhurst," Salisbury Rd., Rose Bay, Sydney.

1912 Hanscombe, S. A., Greta.
1923 Hargrave, Miss M., Kulki Station, Cherry Tree Hill.
1924 Harnett, Miss E., " Casuarina," Cronulla.
1920 Hays, Mrs. E. M., Sentry Box, Bundarra.
1918 Hays, R. G., " Noco-long," Orton Park, *via* Blayney.
1924 Heumann, G. A., " Ramona," Beecroft Rd., Beecroft.
1924 Hindwood, K. A., " Apsley," 6 Sydney St., Chatswood.
1925 Hooke, C. W., " Wirragulla, " Dungog.
1925 Hooke, Miss J., " Crooks Park," Dungog.
1925 Hooke, Miss Mary, "Dingadee, " Dungog.
1919 Hopson, John Jnr., " Dalkeith," Eccleston.
1920 Hordern, Anthony, Retford Hall, Darling Point, Sydney.
1918 Hordern, Miss A. C., Babworth House, Darling Point, Sydney.
1918 Hordern, Miss D., Babworth House, Darling Point, Sydney.
1922 Hordern, Herbert C., " Nerida," Narellan Rd., Moss Vale.
1922 Hordern, Henry M., " Nerida," Narellan Rd., Moss Vale.
1925 Hudson, J. M., B.E., " Bannaweera, " Uralla.
1919 Hughes, Dr. S., 173 Macquarie St., Sydney.

1915 Ick-Hewins, Dr. T. J., Eden.
1923 Iredale, Tom, Australian Museum, Sydney.

1907 Jackson, S. A., c/o. " Belltrees," Scone.
1923 Jervis, R. H., Moss Vale.
1925 Jones, A. F., Crookes Park, Dungog.
1921 Jones, Mrs. J., Walker, " Bettws-y-Coed," Harris St., Harris Park.
1922 Joseland, H., 7 Greenknowe Avenue, Potts Point, Sydney.

1919 Kater, Mrs. H. E., " Mt. Broughton," Moss Vale.
1907 Keane, H., 20 Austral St., Penshurst.
1918 Kemp, A. P., " Boonanghi," Quirindi.
1921 Kinghorn, J. R., Australian Museum, Sydney.

1901 Lane, E. H., " Cotehill," 19 Anson St., Orange.
1925 Lauchlan, North, Dowling St., Dungog.
1919 Lawrance, Mrs. B. G. ,The Grammar School, Glen Innes.
1923 Lee, C. A., c/o. " Daily Mail," Sydney.
1901 Le Souef, A. S., C.M.Z.S., Taronga Zoological Park, Mosman.

1925 Makinson, P. R., 48 Sutherland Rd., Neutral Bay.
1924 Manuell, V., Prickly Pear Experiment Station, Gravesend.
1925 Martin, Miss Jean, Bank of N.S.W., Dungog.
1920 Mawhiney, H. A., " The Prairie," Ashley.
1922 Mawhiney, H. A. Junr., Cranbrook School, Edgecliff.
1922 Middleton, F. R., " Warrah Station," Willow Tree.
1924 Minell, Bruce W., Park Lane Mansions, Darlinghurst, Sydney.

1920 Morse, B. S., " Bindaree," Yenda.
1920 Morse, J. N., Sentry Box, Bundarra.
1924 Musgrave, A., Australian Museum, Sydney.
1921 McCallum, F., Forest Lodge, Goulburn.
1925 McCulloch, Miss D., Public School, Murwillumbah.
1923 MacGillivray, Dr. Ian, Broken Hill.
1901 MacGillivray, Dr. W., Broken Hill.
1924 Mackay, Mrs. Amy, Port Hacking.
1922 Mackay, J. J., " Giro," Gloucester.
1924 Mackay, J. K., " Caugou," Dungog.
1921 McKeown, K., Box 105, Leeton.
1924 McMicking, F. V., " Kincora," Tootool.
1918 MacPherson, Dr. J., " Wyoming," 175 Macquarie St., Sydney.

1921 Nubling, E., 38 Macleay St., Sydney.

1901 Peir, P., 70 King St., Rockdale.
1920 Potter, J., " Mildura," Grassmere Rd., Neutral Bay.
1923 Price, F. W., Box 5, Aberdeen.
1919 Purser, Dr. C., 193 Macquarie St., Sydney.

1921 Rafferty, A. J., Top Creek, Upper Macleay, *via* Armidale.
1917 Ramsay, J. S. P., 53-55 George St. North, Sydney.
1925 Richmond, G. W., " Wandeen, " 20 Darling Pt. Rd., Sydney.
1920 Rickman, E. C., " Loretto," Lindfield, Sydney.
1922 Roberts, S. L., Bolivia Station, Bolivia.
1918 Rolin, F. Lynne, Castlereagh House, Castlereagh St., Sydney.
1925 Roorke, Miss Lorna, West Maitland.

1920 Sandilands, J. B., " Roumalla," Uralla.
1901 Savidge, Geo., Copmanhurst.
1920 Scammell, G. V., " Melrose," 28 Middle Head Rd., Mosman.
1925 Scott, A. W., 30 Grosvenor St., Sydney.
1925 Shepherd, C. A., Yurong St., Sydney
1910 Sherrie, W., " Land " Office, 7 O'Connell St., Sydney.
1916 Sloane, J., Mulwala Station, Mulwala.
1924 Sloane, T. G., " Moorilla," Young.
1916 Sloane, W. H., Savernake Station, Savernake.
1925 Smith, G. A., Munni, via Dungog.
1924 Smith, W. R., " Kingsdale," Bundarra.
1919 Sorensen, E. S., 66 Sydenham Rd., Marrickville, Sydney.
1923 Spencer, B. G., Gundamulda, Barraba.

1914 Thomas, J. B., Room 41, Wentworth Court, 64 Elizabeth St., Sydney.
1917 Thompson, Charles, Kulkyne Station, *via* Euston.
1921 Troughton, E. Le G., Australian Museum, Sydney.

1921 Vaughan, Mrs. Crawford, " Fairhaven," Lorne Avenue, Killara.

1924 Waller, Guy B., Wallarobba.
1924 Waller, Lewis, Wallarobba.
1925 Wansey, Jas., The King's School, Quirindi.

1924 Waterhouse, Dr. G. A., B.E., D.Sc., Royal Mint, Macquarie St., Sydney.
1920 Wenz, Mrs. P., " Nanima," Cowra.
1919 Wenz, P., " Nanima," Cowra.
1919 Westcott, A. E., Vincent St., Cessnock.
1922 Whalley, R. P., " Menadool," Moree.
1909 White, A. H., " Belltrees," Scone.
1920 Whitfield, J. A., " Lyncroft," Beaconsfield Parade, Lindfield.
1915 Wolstenholme, H., " Maybanke," Junction Rd., Wahroonga.
1924 Wootton, W. B., 231 Livingstone Rd., Marrickville, Sydney.
1924 Wright, Mrs. C. M., Wongwibinda, Armidale.
1923 Wyndham, Mrs., Heathcote, " Westholm," Inverell.
1911 Wynne, R. Owen, " Wynstay," Mount Wilson.

QUEENSLAND.

1914 Alexander, W. B., M.A., Sherwood, Brisbane.
1924 Archer, Mrs. Alister, Gracemere.
1924 Archer, R. S., Gracemere.

1919 Barker, G. H., 225 Albert St., Brisbane.
1901 Barnard, C. A., " Coomooboolaroo," Duaringa.
1911 Barnard, Mrs. G., " Kilrock," Glenrosa Rd., Red Hill, Brisbane.
1901 Barnard, H. G., Rio Station, Edungalba.
1920 Barnard, W. B., The Range, Toowoomba.
1924 Bassingthwaighte, S. K., Riversdale, Chinchilla.
1921 Bernays, E. C., Margaret St., Toowoomba.
1901 Berney, F. L., Barcarolle Station, Jundah, *via* Longreach.
1916 Black, Mrs. Adam, Pajingo Station, Charters Towers.
1917 Bligh, A. C. V., Condamine Plains, Brookstead.
1925 Bouchard, Mrs. T. W., "Laurel Bank," Highgate Hill, South Brisbane
1919 Brenan, J. O'Neil, Immigration Office, Brisbane.
1921 Burns, A. N., Sugar Experiment Station, Meringa.

1925 Cole, T. A. Junr., Prickly Pear Experiment Station, Chinchilla.
1901 Cornwall, E. M., Box 152, Mackay.
1919 Cowan, Jas., Boy's Grammar School, Brisbane.
1919 Cummins, Dr. R. H. La.B., Burketown, North Queensland.

1923 Dinsdale, J., B.C.C. Mine, Collinsville.
1910 Dornbusch, C. C., " Avalon," Warwick.
1919 Drain, D. S. A., B.A., High School, Dalby.
1924 Duhig, His Grace Archbishop, " Dara," Brisbane.

1921 Edwards, W. Harry, Coongoola, Colosseum.

1920 Gaukrodger, D. W., " Wai-iti," Windermere Rd., Ascot, Brisbane.
1913 Geary, N., Mount Pleasant, Dalby.
1923 Geissmann, Miss H. G., " Capo-di-Monte," North Tambourine Mountain.

1913 Hall, L. A., " Barambah," Goomeri.
1908 Harvey, W. G., " Marwood," Mackay.
1919 Hayes, Rev. Father Leo., Taroom.
1922 Hitchcock L. F., " Willoata," Kedron Park Rd., Wooloowin, Brisbane.
1920 Holmes, Ivo C. J., Myall Park, Macalister.

1924 Jerrard, C. H. H., " Blackdown," Gayndah.

1925 Killeen, J. J. Sarina.

1918 Longman, H. A., Queensland Museum, Brisbane.

1925 Mann, J., Prickly Pear Laboratory, Sherwood, Brisbane.
1919 Mayo, Mrs. W. M., " Hinemoa," Roseberry St., Highgate Hill, South Brisbane.
1924 Meilland, Mrs. R., " Rose Vale," Byfield, *via* Yeppoon.
1923 Moffat, H., " Bloomfield," Blackall.
1925 Moore, H. M., " Killearn," Windermere Rd., Hamilton, Brisbane.
1921 McCrae, J. K., " Langdale," Longreach.
1922 Mackenzie, E. P., " Coolabah," Jondaryan.
1924 Mackenzie, Mrs. E. P., " Coolabah," Jondaryan.
1922 McLean, C. N., " Durham Downs," Thargomindah.

1919 Nathan, H. E. Sir Mathew, P.C., G.C.M.G., Government House, Brisbane.

1923 O'Galvin, D. F., " Norley Station," Thargomindah.
1924 Ohl, C. F., Depot Hill Road, Rockhampton.

1924 Page, W. J., Quinby Apiaries, Emu Vale.
1919 Price, Mrs. H. C., " Geeumbi," Herries St., Toowoomba.
1919 Price, Dr. T. A., " Geeumbi," Herries St., Toowoomba.

1919 Roberts, Dr. Spencer, Finchley, Toowoomba.
1920 Rogers, C. M., Toorrilla, *via* Rockhampton.

1920 Tilley, Miss D. M., " Boolillival," Rose Hill, S.W. Railway.
1919 Turner, Dr. A. J., Wickham Terrace, Brisbane.

1924 Webb, O., Wahroonga, Darr Creek, *via* Jandowae.
1924 White, E. L. D., Brooklands, Woodhill.
1919 Whitehead, Gerald, Charters Towers.
1923 Whittingham, Hon. A. H., " Mayfield," Hamilton, Brisbane.

SOUTH AUSTRALIA.

1921 Abbott, H. L., Henley Beach.
1922 Aiston, G., Mulka, *via* Marree.
1901 Ashby, E., F.L.S., C.F.A.O.U., M.B.O.U., " Wittunga," Blackwood.

1922 Bailey, J. F., Botanical Gardens, Adelaide.

1914 Cantwell, E., Warwick St., Walkerville.
1922 Cave, W. A., " Redcourt," Wilsden St., Walkerville.
1918 Christison, Mrs. John, Clare.
1902 Cleland, Prof. J. Burton, University, Adelaide.
1901 Crompton, A., " Huron," Statenborough St., Knightsbridge.

1925 Harvey S., "St. Anstell," 80 Northgate St., Millswood.
1922 Hawker, John, "Anama," Clare.
1918 Lienau, C. H. A., "Newbury," 23 Victoria Avenue, Unley Park.
1901 Mellor, J. W., "Mellor Park," Lockleys.
1901 Morgan, Dr. A. M., 206 North Terrace, Adelaide.
1921 Murton, L. M., E.E. Tel. Coy., Adelaide.
1918 McGilp, J. Neil, "Origma," 184 Napier Terrace, King's Park.
1920 McGilp, Mrs. J. Neil, "Origma," 184 Napier Terrace, King's Park.

1925 Newell, H. H., J.P., Hindmarsh Island.

1909 Osborne, R. E. P., Clarke & Co., Grenfell St., Adelaide.

1912 Parsons, F. E., 87 King William St., Adelaide.
1923 Pearce, A. W., "Nura Mukie," Point Sturt.
1923 Pearce, Miss J., "Nura Mukie," Point Sturt.

1921 Ribbons, R. G., Pinnaroo.
1922 Russell, C. H., "Lynwood Farm," Halidon.

1913 Sanders, Samuel, Warradale P.O., Sturt.
1909 Sanderson, Miss H. L., "Killingsworth," 68 Strangways Terrace, Nth. Adelaide.
1922 Shields, H. D., "Brooklyn," Melrose.
1913 Somerville, J. D., 279 Goodwood Rd., King's Park.
1919 Sutton, John, "The Bungalow," Fullarton Rd., Netherby, Mitcham.

1922 Vohr, Miss I. M., 27 Watson Avenue, Rose Park.

1920 Waite, E. R., F.L.S., C.M.Z.S., S.A. Museum, Adelaide.
1910 White, Mrs. S. A., "Wetunga," Fulham.
1910 Whitington, E., "Register" Office, Adelaide.

WESTERN AUSTRALIA.

1917 Draper, Mr. Justice T. P., C.B.E., 8 King's Park Rd., Perth.

1917 Higham, J. B., "Manutarra," Alexandra Rd., East Fremantle.

1920 Lawrence, F. G., c/o. Lionel Samson & Son, Fremantle.
1901 Leake, B. W., "Cardonia," Kellerberrin.
1901 Le Souef, Major E. A., B.V.Sc., F.Z.S., Zoological Gardens, South Perth.
1919 Loaring, W. H., "Lawnbrook," Bickley.

1910 Orton, C. E., Petworth Park, Moora.

1921 Packham, J. Jnr., Doongin Peak, Tammin.

1907 Sandland, P. T., Burrabidgy Station, Moora.
1921 Serventy, D. L., Railway Parade, East Cannington.

1916 Tubman, E. A. W., "Minilya," *via* Carnarvon.

1920 Whitlock, F. Lawson, 111 Colin St., West Perth.

TASMANIA.

1918 Anderson, Dr. Bruce, Westbury.
1919 Anderson, Dr. G. Murray, "Raggal," 56 Clare St., New Town, Hobart.
1920 Burbury, C., "Brookside," Noondah.
1901 Butler, A. L., 126 Collins St., Hobart.
1923 Butler, Dr. T. C., 144 Macquarie St., Hobart.
1923 Crowther, Dr. W. L., D.S.O., 180 Macquarie St., Hobart.
1901 Fletcher, Miss J. A., "Lyeltya," Eaglehawk Neck, South Tasmania.
1922 Giblin, Dr. W. W., 142 Macquarie St., Hobart.
1901 Hall, R., C.M.Z.S., Orchard Close, Waimea Avenue, Sandy Bay, Hobart.
1901 Harrison, W. M., Orford, East Coast.
1918 Legge, R. W., Cullenswood House, Cullenswood.
1911 Lord, C. E., Tasmanian Museum, Hobart.
1912 McDonald, Miss E., Beaconsfield.
1921 Reed, J. H., Mount Pleasant, Launceston.
1923 Reid, A. R., Beaumaris Zoo, Hobart,
1921 Sharland, M. S. R., "Mercury" Office, Hobart.
1908 Swindells, A. W., "Ronwood," 2 Patrick St., Hobart.
1901 Thompson, H. C., 12a Stone St., Launceston.
1916 Travers, Miss Cicely, "Garstang," Fisher's Avenue, Lower Sandy Bay, Hobart.
1923 Wagstaff, Lieut. L. R., "Camp Major," Kettering.

NEW ZEALAND.

1922 Bathgate, Dr. D. A., High St., Motueka.
1924 Clarke, A. T., Box 486, Wellington.
1922 Cockcroft, T., 111 Owen St., Wellington South.
1920 Falla, R. A., 41 Calliope Rd., Devonport, Auckland.
1904 Guthrie-Smith, W. H., Tatira, Napier.
1921 Haeusler, H. R., Box 36, Taneatua, Bay of Plenty.
1924 Kehoe, E. L., Technical School, Greymouth.
1925 McCaskill, L. W., B. Ag., Te Aroha.
1923 Moncrieff, Mrs. P., "The Cliffs," Nelson.
1921 McKay, Dr. Wm., 45 Guinness St., Greymouth, Westland.
1923 O'Donoghue, A. F., Box 169, Blenheim.
1910 Oliver, W. R. B., Dominion Museum, Wellington.
1923 Pattison, J., Jutland Hotel, Taumarunui.
1923 Sanderson, Capt. E. V., Box 631, Wellington.
1922 Smith, W. W., Niger House, Pendarves St., New Plymouth.
1919 Stidolph, Robt. H. D., 28 Makora Rd., Masterton.
1921 Wilkinson, A. S., Kapiti Island, *via* Paraparaumu, Wellington.
1925 Wilkinson, Mrs., Kapiti Island, *via* Paraparaumu, Wellington.

BRITISH ISLES.

1901 Carter, Tom, M.B.O.U., "Wensleydale," Mulgrave Rd., Sutton, Surrey.
1917 Cochrane, Capt. H. L., The Chase, Whaddon, Bletchley, Bucks.
1916 Evans, Dr. A. H., 9 Harvey Rd., Cambridge.
1923 Mathews, Alister W. O., "Foulis Court," Fair Oak, Hants.
1905 Mathews, Gregory M., F.R.S.E., M.B.O.U., "Foulis Court," Fair Oak, Hants.
1901 Parkin, T., M.A., "Fairseat," High Wickham, Hastings, Sussex.
1920 Smith, C. Horton, "Woodvale," Bramhall, Cheshire.
1901 Seth-Smith, D., Zoological Gardens, Regent's Park, London, N.W. 8.
1922 Teague, R. M., "Holmcroft," Ewhurst, Surrey.
1903 Workman, W. H., M.B.O.U., F.Z.S., Lismore, Windsor Avenue, Belfast, Ireland.

UNITED STATES OF AMERICA.

1919 Dawson, Wm. Leon, R.D. No. 1, Box 41, Santa Barbara, California.
1925 Doolittle, E. A., Box 44, Painesville, Ohio.
1923 Harlow, J. Earl, Texico, Illinois.
1924 Hart, C., Route 1, Box 432, Montebello, California.
1922 Myers, J. G., c/o. Bussey Institute, Forest Hills, Boston, Mass.
1917 Norris, J. Parker Junr., Room 816, City Centre Building, Broad and Cherry Sts., Philadelphia, Pa.
1901 Oberholser, Dr. Harry C., Museum of Natural History, Washington, D.C.
1924 Unglish, W. E., Gilroy, California.
1922 Wetmore, Dr. A., F.A.O.U., Smithsonian Institution, Washington, D.C.

OTHER COUNTRIES.

1923 Basil-Edwardes, S., Imperial Secretariat, Simla, India.
1901 Belcher, Judge C. F., M.A., M.B.E., Zomba, Nyasaland, Africa.
1922 Bennett, A. G., Port Stanley, Falkland Is.
1924 Decoux, A., Gery, Aixe-sur-Vienne, Hte. Vienne, France.
1920 Delacour, J., Chateau de Cleres, Seine Inferieure, France.
1920 Julius, Sydney, Colombo, Ceylon.
1925 Luig, Dr. Bruno, 105 Avenue du Diamant, Brussels, Belgium.
1903 McGregor, R. C., Bureau of Science, Manila, Philippine Is.

Birds Observed in the Melbourne Botanical Gardens.

By N. J. Favaloro, R.A.O.U., Melbourne.

A visit to the Botanical Gardens was arranged for Wednesday morning 30th Sept., but unfortunately business duties prevented a very large attendance. During the morning the following birds were observed :—

Silver Gull (*Larus novæ-hollandiæ*). Many seen wheeling gracefully over the Yarra River or resting peacefully on small motor boats.

Crested Tern (*Sterna bergii*). As we were nearing the concrete wall one of these birds alighted near the edge. Mr. Cohn and myself approached it carefully and were able to obtain a clear view of the crest which was very prominent. Not until we were within ten feet of the bird did it take flight.

Black Moor-hen (*Gallinula tenebrosa*) and **Coot** (*Fulica atra*). Both species were very common in the lakes in the gardens, where they breed annually. Our attention was drawn to five young Moorhens being cared for by a Coot. Mr. Ross assured us that they were the young of *G. tenebrosa*, which had probably strayed from their parents. Two days later I paid a visit to the gardens and watched the birds for a considerable time. Although there were a number of Moor-hens near, the five young birds (with bright red frontal plates) were still following the Coot. From time to time she would disappear and bring to the surface some weeds which were given to the young. Whether she adopted them after hatching or claimed some poor Moorhen's nest I am unable to say. Although there were other families of Moor-hens on the lake I could not find another instance of this.

Bald Coot (*Porphyrio melanotus*). Only one was seen. They appear to be very scarce in the gardens and seldom stay long.

Hoary-headed Grebe (*Podiceps poliocephalus*). Three were feeding on the northern side of the lake ; no nest could be found although they breed there every year.

Black Swan (*Chenopis atrata*). A pair of birds nested as usual on Swan Island and succeeded in hatching their five young. One of the mature birds was on the northern side with three young, while the other was on the southern side with the remaining two ; the young looked about three weeks old.

Black Duck (*Anas superciliosa*). These were by far the commonest ducks present . Several young broods were noted near the edge of the lake in company with the older birds, but for the most part they appeared quite capable of looking after themselves.

White-eyed Duck (*Nyroca australis*) and **Blue-billed Duck** (*Oxyura australis*). Six of the former species and two of the latter were in company with the Black Ducks. The Blue-billed do not very often stay long but the White-eyed remain throughout the whole year, though, strange to say, I have never known them to breed on the lake, except one occasion in 1922.

Musk Duck (*Biziura lobata*). One lonely specimen contented himself in the centre of the lake. Occasionally three or four may be seen but they never seem to make themselves at home as the other ducks do. They never come close enough to be fed with biscuits or bread-crumbs.

Black Cormorant (*Phalacrocorax carbo*). These large birds were patiently sitting on some rocks just above water level. They remain nearly all the year, but in spite of this the lake is still infested with eels.

Pied Cormorant (*Phalacrocorax varius*). Eight Cormorants with white breasts were sitting in an old tree, but, as no one had field glasses we were unable to tell whether they were *P. varius* or *P. fuscescens.* Two days later, while watching the Water-hens I had a look at the Cormorants through glasses and as there were no *P. fuscescens* present I concluded that the birds we saw previously were *P. varius.* I have seen *P. fuscescens* in the gardens on several occasions.

Nankeen Night-Heron (*Nycticorax caledonicus*). Many birds in various phases of plumage were dozing in the higher branches of pine trees. The majority of them, however, were immature, probably last season's birds.

Laughing Kookaburra (*Dacelo gigas*). Seen in an elm tree toward the latter part of the morning, he had something in his bill but we were unable to find out what it was. A male was heard laughing a little later.

Welcome Swallow (*Hirundo neoxena*). Very plentiful; nearly all busily engaged in building nests under the bridges.

Black-and-White Fantail (*Rhipidura leucophrys*). Four of these homely birds were seen during the morning. They were so much taken up with their task of catching small flies that they paid little or no attention to their admirers.

Reed Warbler (*Acrocephalus australis*). For the first time this season our reed-loving friends were heard in Melbourne. Nearly every bird was adding his voice to the joyful chorus; as yet domestic duties have not appeared to trouble them.

Grass Warbler (*Cisticola exilis*). Only one solitary bird was heard among the reeds. Had it not been for his pleasant notes it is probable that he would not have been noticed at all.

White-browed Scrub-Wren (*Sericornis frontalis*). While trying to get a better view of some young Water-fowl, one of these birds was seen carrying some food in its bill. Although it was watched carefully it eluded us and, as usual, all efforts to locate the nest failed. Some time later another was seen feeding on the lawn and had no objection to being watched at close range by Mr. Campbell and Dr. Andesron.

Blue Wren (*Malurus cyaneus*). Several families of these sprightly birds inhabited the fernery and hedges. Only one or two males were noticed although many more were close at hand.

Magpie-Lark (*Grallina cyanoleuca*). Birds of both sexes were wading in the shallow water. One pair had a nest on a thin limb of a Willow tree overhanging the lake.

White-eye (*Zosterops dorsalis*). A flock of about 30 birds were feasting on insects in rose trees.

White-plumed Honeyeater (*Meliphaga penicillata*). These were the first birds seen on entering the gardens. Six of them were chasing each other about the lower branches of a leafless tree and gave a fine exhibition to our visitors who were specially interested in them because they are not known in Tasmania.

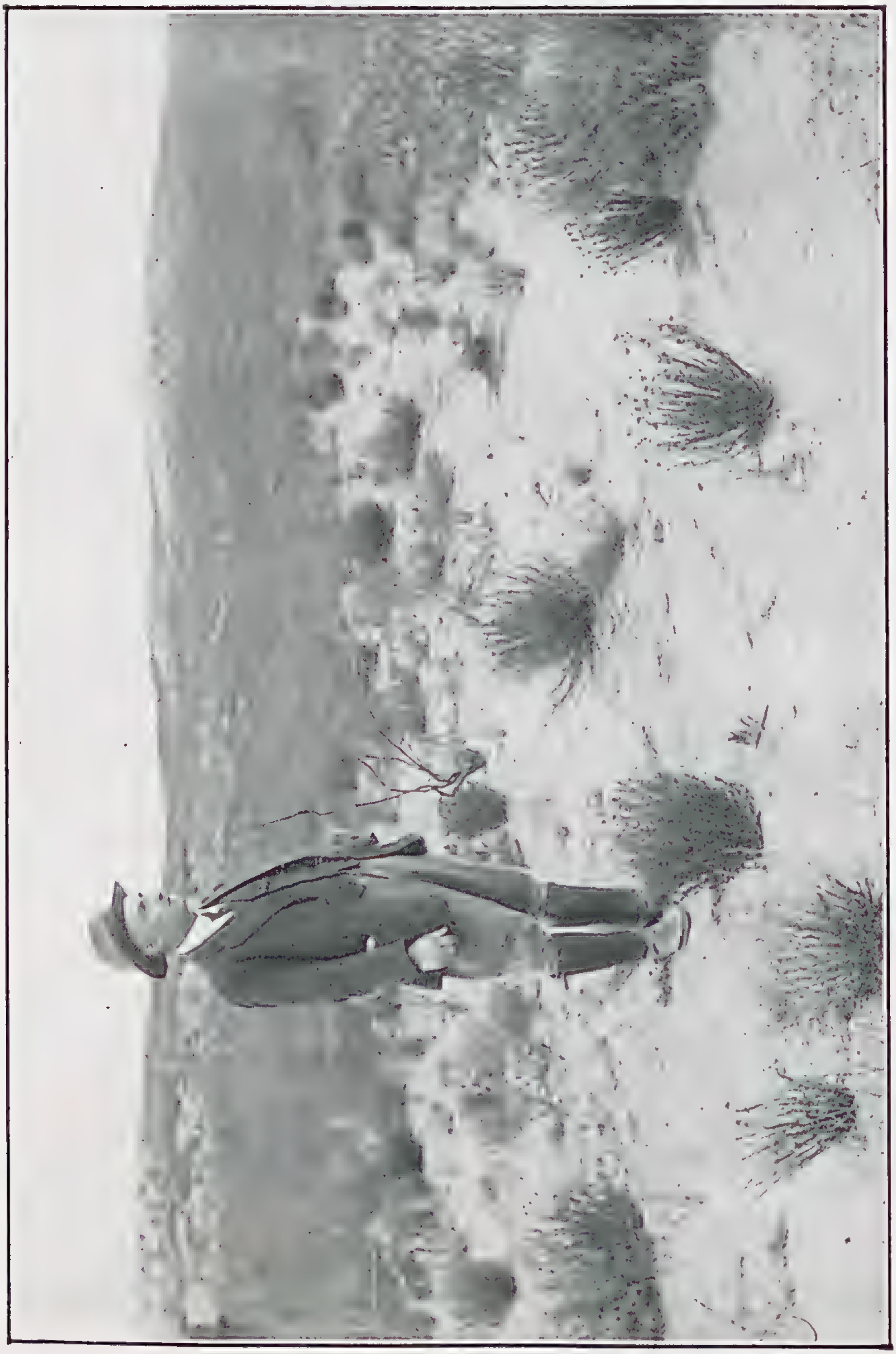
Red Wattle-bird (*Anthochaera carunculata*). Only one bird was seen although the harsh notes of several others were heard in the distance.

Brush Wattle-bird (*Anthochaera chrysoptera*). Mr. Campbell reported having seen one of these Wattle-birds in a flowering Japonica but unfortunately no other birds of this species were seen until the party had broken up when several members had the good fortune to see a pair of them.

Spotted Ground-birds (*Cinclosoma punctatum*). My hopes in regard to taming the pair of Spotted Ground-birds mentioned in the *Emu*, xxiv, p. 301, were doomed to disappointment. One bird disappeared. I wondered what had happened, but a few nights later my poultry yard had a visit from a Tiger Cat, so I concluded the same creature must have taken the Ground-bird. Afterwards I found the nesting-site on the hillside a short distance away. The nest was made of eucalypt leaves tucked neatly round a hollow beneath a small rock, over which a spray of *Pimelea* hung, forming a door curtain. The nest faced north-east.

The remaining bird procured another mate, but the pair went further up the hillside, and the young ones were not brought near until the autumn. The whole family spent much of the day in the heath and scrub adjacent, sometimes venturing into the garden enclosure and scouring the flower-beds for food. As a rule, when they did this, one of the older birds came first to scout. If all appeared quiet, he or she would utter the peculiar cry and presently the others would slip in, running quickly over the paths until hidden by the foliage of the plants. I have watched them from the window and occasionally from the verandah, but, at the first movement, they were gone.

Their note is a very hard one from which to locate the exact position of the maker. I have listened, and listened, and heard one bird answering the other, but could not say definitely: "No. 1 is just there; No. 2 is by that bush." Towards evening I hear the family talking together as they make their way up the hillside, evidently to their sleeping quarters. Lately the children have been cast off and the parents have returned to their selected area and I expect may have the nest ready.—(MISS) J. A. FLETCHER, R.A.O.U., "Lyeltya," Eaglehawk Neck, Tas.



TYPICAL "DESERT" COUNTRY, SOUTH OF MURRAYVILLE, VIC

Photo. by Chas. Barrett.

The Excursion to Murrayville.

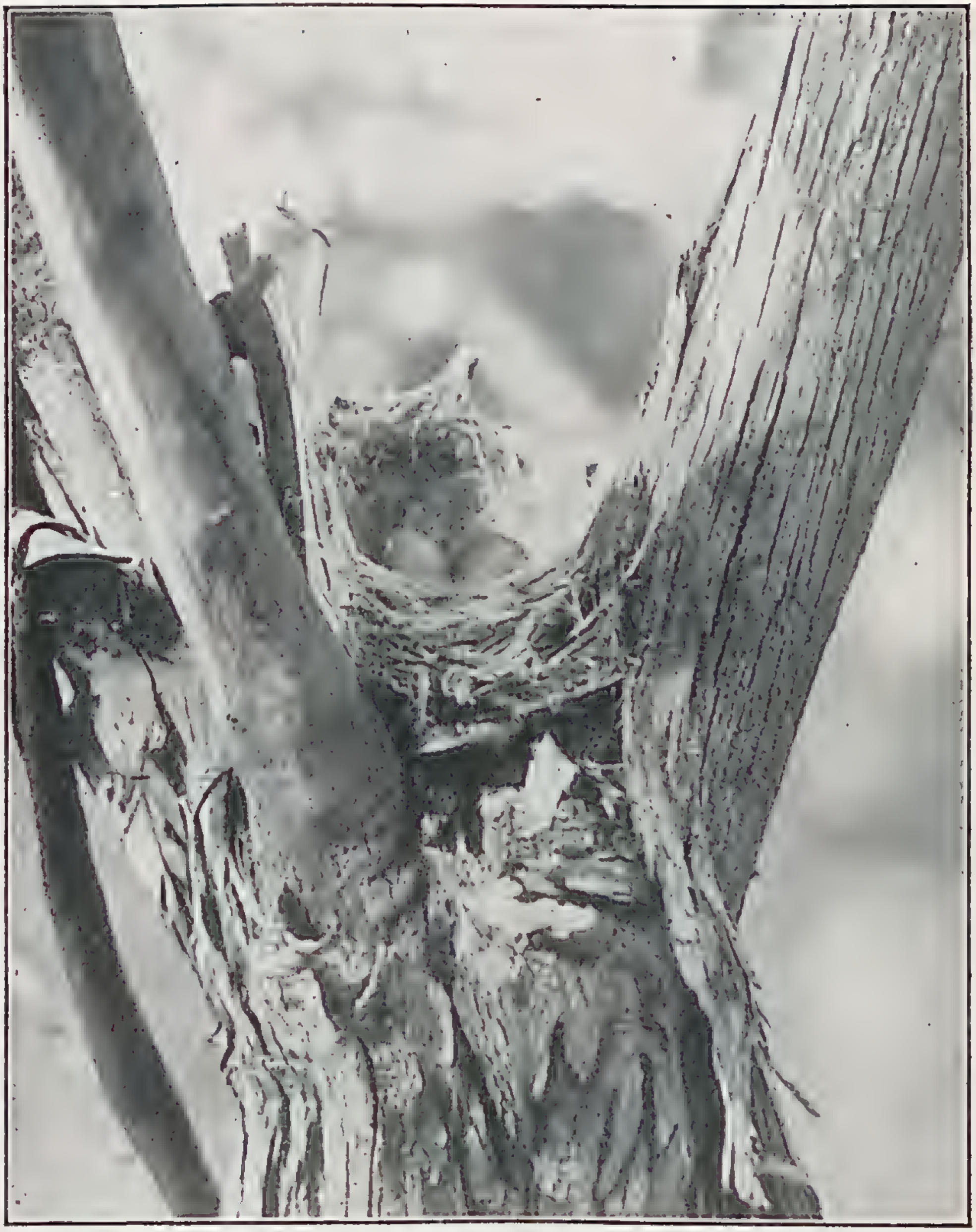
By J. A. Ross, R.A.O.U., Melbourne.

The Annual Meeting of the R.A.O.U. for 1925 was concluded on Thursday morning, 1st October, and in the afternoon Drs. G. Anderson and B. Anderson, from Tasmania, Mr. E. Bryce, from New South Wales, and Mesdames Butchart and J. W. Israel, Miss Macdonald, Dr. Hope and Messrs. C. L. Barrett and J. A. Ross, from Victoria, left Melbourne by train. At Maryborough we were joined by Colonel T. Anderson, who had come by train from Ballarat. We arrived at Murrayville at 9.15 a.m. next day and were met by the Rev. Walter Walters, R.A.O.U., of Cowangie, who had made arrangements for our accommodation. Soon after our arrival we were welcomed by the President and Councillors of the Shire of Walpeup. The President (Mr. C. R. Henderson) and Councillor J. Wiltshire, expressed the hope that our visit to their locality would be successful and enjoyable. Messrs. Ross and Barrett briefly responded. The party then walked across the railway line to a reserve containing hundreds of acres of land practically in its natural state. Here many interesting birds were seen and heard, and a few nests were found. During the afternoon deeper excursions into the reserve were made.

On the following morning we were conveyed in three motor cars, south to the fringe of the Desert country, by Messrs. Duthie, Kruse, and Voight, of Murrayville, who, at the request of Mr. Walters, had willingly placed themselves and their cars at our service. Messrs. Duthie and Kruse returned to Murrayville, but Mr. Voight remained with us and accompanied us in our excursions. Shortly after noon, Mr. and Mrs. Walters arrived by car. We walked a mile or two into the Desert. Several nests were found, and a few species of birds, which had not been seen in the reserve, were observed and heard. A careful search for a nest of a Scrub Robin (*Drymodes brunneopygia*) was made, but only two of last year's nests could be found. Both were well preserved, and built about six inches above the ground. It had been arranged that Messrs. Duthie and Kruse should return at an appointed time to help to take the party back to Murrayville. Mr. Kruse tried a short cut, but found that there was about a mile of sand over which the car could not be taken, so he walked that distance only to find that the party had left. The result was that Colonel Anderson, Dr. Hope, and Mr. Ross, had walked about three miles on the homeward track before they were picked up. That night an egg which had been taken from a mound of a Mallee Fowl (*Leipoa ocellata*) was exhibited, and enquiries were made as to the situation of the mound, so that next day our party drove northward about 12 miles, to the limit of cultivation in that direction. We were conducted about a mile further through the scrub to the mound, which we opened. It contained no eggs, for two had been taken from it the day before. Dr. B. Anderson and Messrs. Barrett and Bryce took several photographs of the mound, both before it was opened and subsequently. A return was then made to the cars, and we had lunch at the home of a settler. Half of the party then drove back two or three miles along the road, and then walked about two miles westward, looking for another mound, reported to be in this direction. The mound was not found, but on the way out a pair of Mallee Fowls were seen, and later one of the birds was again observed. The other members of the party spent the afternoon taking photographs and collecting entomological specimens. At an appointed time, both cars returned to the township.

The locality visited on Monday, known as the Duddo Wells Reserve, lies about six miles north-east of Murrayville. This area contained bigger timber, and is much more open than the localities previously visited. Most of the birds there could be easily seen and identified. Among them were several members of the order *Psittaciformes.* A hawk's nest was climbed to, but proved to be empty. In one space, about 50 yards long by 20 yards wide, five nests of different species were found. In the first were four eggs, on which a Restless Flycatcher (*Seisura inquieta*) was sitting; in the second a Hooded Robin (*Melanodryas cucullata*) sat on two eggs; in the third were two eggs covered by a Tawny Frogmouth (*Podargus strigoides*); the fourth nest was in a hollow limb and contained young birds, which were being fed by a pair of Mulga Parrots (*Psephotus varius*); the fifth nest belonged to a pair of Jacky Winters (*Micrœca fascinans*), and was ready for the eggs. These and a nest of Yellow-plumed Honeyeater (*Meliphaga ornata*), containing three eggs, engaged the attention of the photographers. This day Colonel Anderson left us to proceed on a business visit to Mildura.

On Tuesday morning our party assembled at the railway station, where everything was white with frost. At 5.45 a.m. we started eastward by train, Messrs. Bryce and Barrett to return to Melbourne, the ladies to go to Linga, and the remainder of the party to Cowangie. From Linga the ladies proceeded about eight miles northward, and inspected the Pink Lakes and the works there established for obtaining salt from the lakes. Those who went to Cowangie were met at the railway station by Mr. Walters, and walked through fairly big timber towards his home. Our friend provided breakfast for us in the open. Then we walked through the timber, observing a few species of birds not seen elsewhere, and finding several nests, and later we crossed part of the Kow Plains to the old Homestead, where Mr. Ross noticed changes and improvements from the time when he and Mr. F. E. Howe stayed there before the railway line had been built. A return was made to the home of Mr. Walters, where his wife had prepared a meal for us. Walking towards the station in the afternoon we found a dead Purple-crowned Lorikeet (*Glossopsitta porphyrocephala*), which, evidently, in its flight at great velocity, had struck a telegraph wire. At the railway station we met the ladies on their way back from Linga with splendid specimens of salt crystals from the lakes, and all returned to Murrayville. Mr. E. Ashby had arrived from Adelaide, during our absence.



NEST AND EGGS OF HOODED ROBIN. Taken at R.A.O.U. "camp-out," Murrayville District.

Photo. by Chas. Barrett.

NATIONAL MUSEUM MELBOURNE

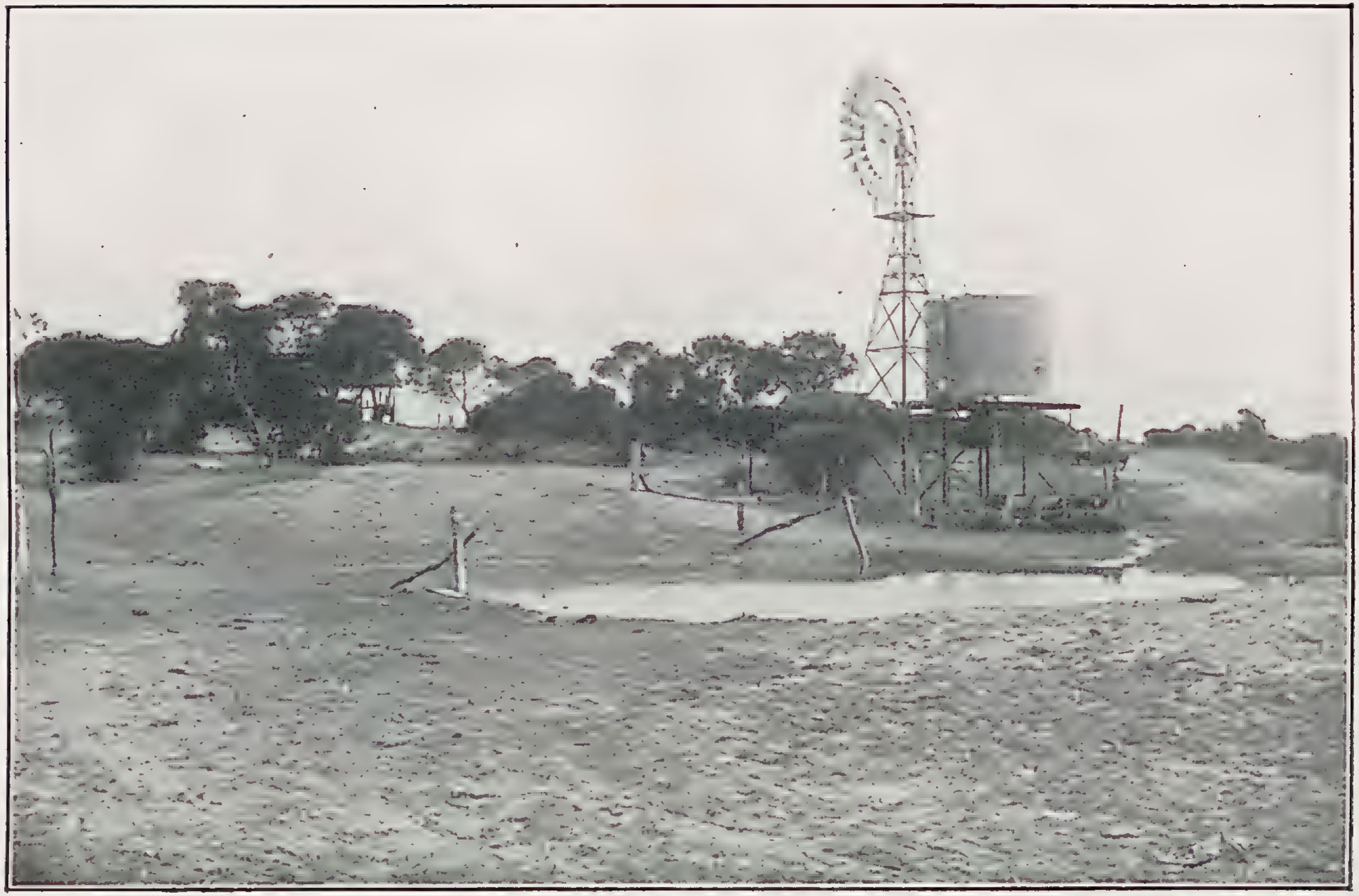
Drs. G. and B. Anderson on Wednesday took train westward for Murray Bridge, in South Australia, where they boarded the express from Adelaide to Melbourne, and the ladies and Dr. Hope went eastward, the former intending to pay a visit to Mildura, and Dr. Hope being bound direct for Melbourne. Messrs. Ashby and Ross spent that day in the Desert country, about two miles west of the part previously visited, being driven down by Mr. Duthie, who piloted them in a walk three miles south to where there had been some tall Murray pines, and other fairly big timber ; but all that had been fit for fencing posts had been cut out by settlers. A nest containing three young Hawks, probably Brown Hawks (*Falco berigora*) was climbed to, and a smaller hawk's nest, probably belonging to a Collared Sparrowhawk (*Accipiter cirrocephalus*) was inspected. The latter was lined with green Mallee Eucalypt leaves, indicating that it would soon contain a clutch of eggs. From this place the party walked westward for upwards of a mile to a high sand hill, and for a few hundred yards fresh tracks of a pair of Emus (*Dromaius novæ-hollandiæ*) were followed. They led to and beyond a small depression, containing a little muddy water. From the summit of the sand hill a most extensive view was obtained. The Desert country appeared broken and irregular when compared with the settled land to the north, where there are a series of slight rises and depressions in wave-like formation, generally well defined and running east and west. From the sand hill we returned to the car and had thus traversed the three sides of what was practically a right-angled triangle. In this locality there was a lot of short scrub of a heath-like nature, short mallee, scrub pine, and desert Banksia (*Banksia ornata*) which supplied ample cover and food for numerous honeyeaters. A nest of White-eared Honeyeater (*Meliphaga leucotis*), containing two eggs. was seen in a broom bush, and two nests of White-fronted Honeyeaters (*Gliciphila albifrons*) were observed, one, ready for the eggs, was in a small shrub, and the other had been built in porcupine grass, but had been pulled out and the feathers of the bird, which had been killed, were about a foot away, on the ground.

Next day some time was spent in the reserve near the township and during the afternoon Mr. Ashby left for Murray Bridge, there to meet his daughter, and proceed with her to join a party of botanists at the Grampians, Victoria. On Friday Mr. Arnold arrived from Melbourne while Mr. Ross was in the Desert country ; and on Saturday they were both driven to the Desert by Dr. Hecker, of Murrayville, in his car, and late in the afternoon Mr. Kruse went down and brought them back. Among other nests noted this day was one from which a Nankeen Kestrel (*Falco cenchroides*) was flushed, and which held five eggs. A tunnel of Yellow-tailed Pardalote (*Pardalotus xanthopygus*) was found, and the sand thrown out was fresh enough clearly to indicate that the nest had not been built.

Sunday was spent by Messrs. Arnold and Ross in a large reserve at Danyo, about four miles east of Murrayville, where they were driven in the morning, by Mr. Kruse, who went out for them again in the evening. During this day a very strong wind blew and the air was full of red dust. The reserve contained many tall Murray pines and big mallee. A few hawks' nests were seen, but the places in which they were built, and the strength of the wind, put climbing out of the question. Smaller birds were seen building nests, and other nests were found containing eggs. Spotted Nightjar (*Eurostopodus guttatus*) was flushed from the ground, where she had been sitting on an egg.

Monday, October 12th, was the last day of the excursion. In the morning Messrs. Arnold and Ross went to the western part of the reserve, near the township, and searched for nests of Chestnut Quail-Thrush (*Cinclosoma castanotum*) and Southern Scrub Robin (*Drymodes brunneopygia*) without success, although several of the birds were seen. Rain fell for about an hour, and made hunting in short scrub and mallee unpleasant. During the afternoon Mr. Arnold went north to spend a few days with a farmer, and Mr. Ross was driven by Mr. Duthie to the rifle range at the eastern end of the reserve. Near the rifle range was a large area of porcupine grass, through which a search was made for the Striated Grass Wren (*Amytornis striatus*) and Mallee Emu Wren (*Stipiturus mallee*), but neither species was seen. Near the porcupine grass was a fine belt of Murray pines, through which grew short mallee and various shrubs, up to a height of about 12 feet. This belt contained many species of birds and most of them were calling beautifully after the morning's rain. Twice pigeons which were cooing were carefully approached so that the species might be identified and they proved to be Common Bronzewings (*Phaps chalcoptera*). Among other nests found was a large one in a tall Murray pine. It was lined with fresh gum leaves but held no eggs. Probably it belonged to a pair of Australian Little Eagles (*Hieraaetus morphnoides*).

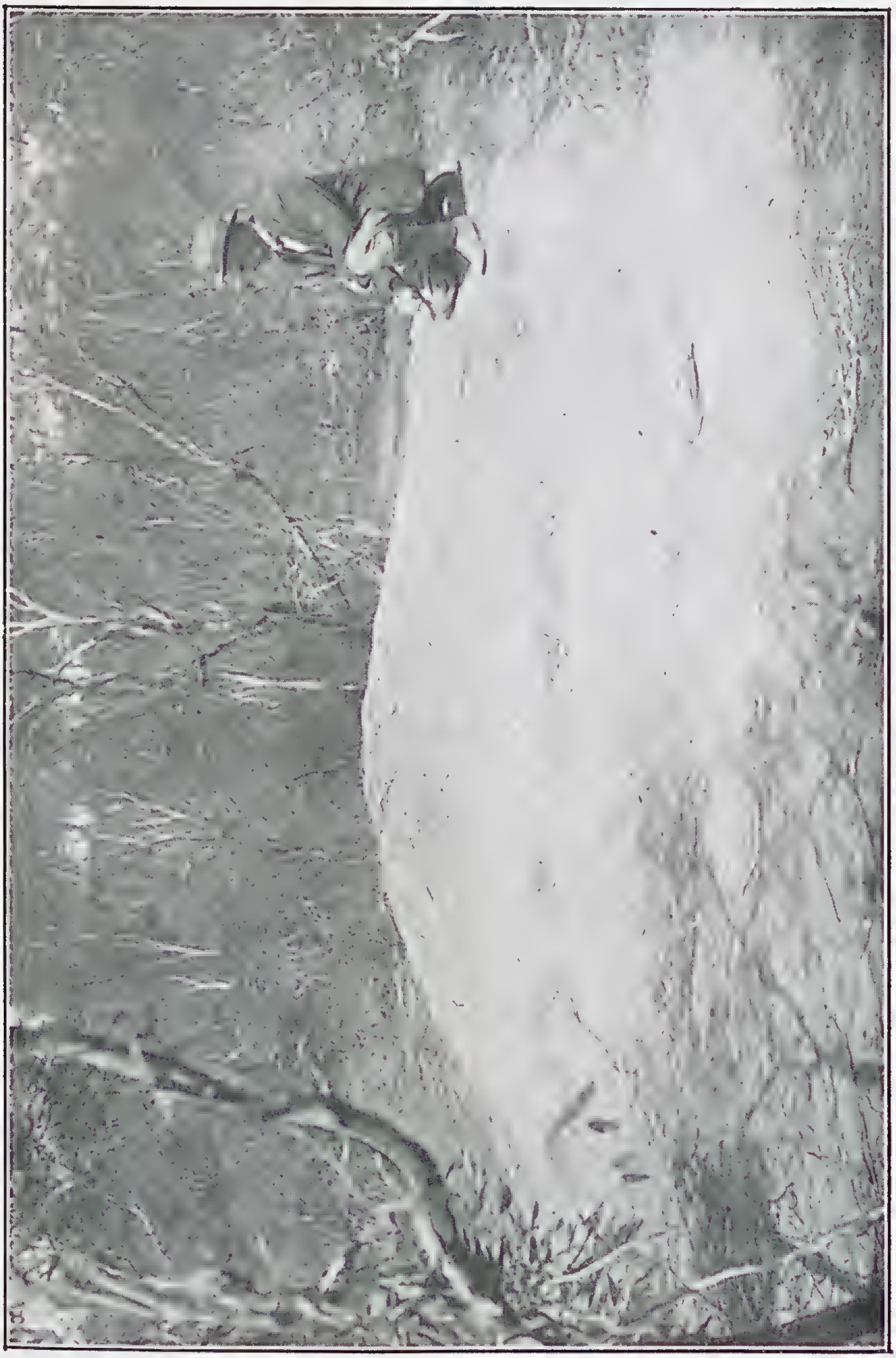
A few members of the Union who were not present at the congress and who did not go to Murrayville expressed regret that a camp right in the mallee away from settlement had not been arranged for, and offered the opinion that it was a mistake for the party to stay in houses in Murrayville away from bird life. For the benefit of such members it might be advisable to mention, that Murrayville was not selected as the base for the excursion without thought or without knowledge of local conditions. If the party had gone under canvas away from settlement, food supplies, and every drop of water required, would have had to be carted long distances. And as for the idea that bird life would be absent near the hotel, a report had been obtained from a reliable man as to the conditions existing in the reserve at the township. Among other things he stated that he had heard Scrub Robins calling while he was seated on the local railway station. In front of the coffee palace was a small belt of mallee in which eight species of native birds were identified in five minutes on the first morning. And it must be remembered that the mallee is a country of distances, so that if it is desired to visit localities where there are different classes of vegetation ranging from heath and desert banksias to bull mallee and Murray pines many miles have to be traversed, and for such a purpose a central locality with ready means of transport is necessary.



A BORE ON THE EDGE OF THE WILDERNESS, NORTH OF MURRAYVILLE, VIC.

Photo. by Chas. Barrett.

NATURAL HISTORY MUSEUM [illegible]



NEST-MOUND OF THE MALLEE-FOWL, AS "CLOSED" BY THE BIRDS.

Photo. by Chas. Barrett.

Only one snake was seen during the trip. It was a brown snake about three feet six inches in length, and was promptly killed by Dr. G. Anderson. Four or five species of lizards were seen, blue tongues and frill-necks being common, especially the former. Entomological specimens were collected by Mr. Barrett, and for those who were interested in botany there was a wide and interesting field, including about a dozen different varieties of Eucalypts.

A list of the birds identified with notes thereon follows.

Notes on the Birds seen in the Mallee Country near Murrayville, October, 1925

By J. A. Ross, R.A.O.U., Melbourne.

Mallee Fowl (*Leipoa ocellata*). A pair was seen in short mallee and subsequently a single bird was seen. One good nesting mound was visited and many old ones were seen.

Stubble Quail (*Coturnix pectoralis*). One was flushed in the desert country, and several were seen in a self-sown crop near the desert.

Common Bronzewing (*Phaps chalcoptera*). These birds were observed in all classes of country, and were sometimes seen when driving along roads. Some nests were found each containing two eggs.

Banded Plover (*Zonifer tricolor*). A few were seen and heard on pasture lands.

Wedge-tailed Eagle (*Uroaetus audax*). Several were seen in different directions. One perched near us for a while on a limb of a burnt mallee on a sand hill at the edge of the desert.

Nankeen Kestrel (*Falco cenchroides*). Some were seen every day. One was flushed from what appeared to be a nest of *Gymnorhina dorsalis*, in which nest there were 5 eggs of the Kestrel.

Other hawks were seen but owing to their being in the air at a considerable distance they could not be identified. Without doubt they would include *Astur fasciatus* (Australian Goshawk) and *Falco berigora* (Brown Hawk).

Boobook Owl (*Ninox boobook*). One was seen in the desert country.

Barn Owl (*Tyto alba*). A bird was seen perched in short mallee on a road, and was quite tame. There was a rabbit warren under the tree, and possibly in the absence of hollow limbs in trees rabbits' burrows are used as nesting sites.

Purple-crowned Lorikeet (*Glossopsitta porphyrocephala*). These birds were numerous wherever the mallee was in blossom, and were fairly tame. When disturbed they uttered a wheezy note and flew off with great velocity.

Pink Cockatoo (*Kakatoe leadbeateri*). Two birds were seen in the reserve at Duddo.

Galah (*Kakatoe roseicapillus*). Many were seen in different directions, particularly in the big timber on the Duddo reserve.

Ringneck Parrot (*Barnardius barnardi*). These birds were common and were usually seen in pairs.

Mulga Parrot (*Psephotus varius*). Seen every day, sometimes in pairs and sometimes in small flocks. One pair was noticed feeding young birds in a hollow limb of mallee.

Blue Bonnet (*Psephotus hæmatogaster*). Colonel Anderson observed a few in the scrub at the side of a road near the desert.

Budgerygah (*Melopsittacus undulatus*). A pair was observed sitting together high up on a limb in the Duddo reserve.

Tawny Frogmouth (*Podargus strigoides*). Several were seen, and they were generally sitting on two eggs in a nest.

Rainbow Bird (*Merops ornatus*). A pair was noticed in the Duddo reserve, flying southward, and a few days later several were seen in the Danyo reserve. It is said these birds favour certain paddocks for breeding purposes, and return to them year after year, while similar adjacent paddocks are not so used.

Spotted Nightjar (*Eurostopodus guttatus*). A pair was flushed from the ground in the reserve at Murrayville, a few were seen in the desert country, and two were observed in the Danyo reserve. One of them had been sitting on an egg on the ground without any nest.

Narrow-billed Bronze Cuckoo (*Chalcites basalis*). These birds were seen and heard in the desert country.

Welcome Swallow (*Hirundo neoxena*). Numerous in Murrayville, and a few seen at other places. There were several nests under the verandahs in the township.

Tree Martin (*Hylochelidon nigricans*). Many were seen in the Duddo reserve where the timber was big enough to contain hollow limbs for nesting purposes.

Willie Wagtail (*Rhipidura leucophrys*). Several pairs were noticed and their notes were frequently heard. Two nests just about ready for the eggs were found.

Restless Flycatcher (*Seisura inquieta*). A few pairs were observed in the bigger timber. One nest with four eggs was seen.

Jacky Winter (*Microeca fascinans*). Common in the bigger timber. Two nests in course of construction were found.

Red-capped Robin (*Petroica goodenovii*). Several pairs were observed, usually among big mallee and Murray pines. In one pair seen in the desert the male had not reached mature plumage. There were a few pairs in the Murrayville reserve.

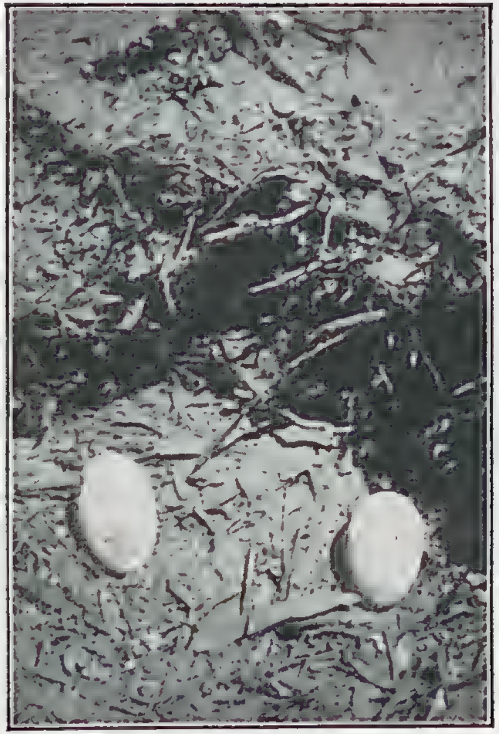
Hooded Robin (*Melanodryas cucullata*). Birds seen in pairs in a few places. One pair had a nest with a pair of eggs in it.

Rufous Whistler (*Pachycephala rufiventris*). Several birds seen and heard, particularly in some broom-like scrub in the eastern end of the Murrayville reserve.

TYPICAL MALLEE SCRUB.

OPENING NEST MOUND OF MALLEE-FOWL.

Photos. by Dr. B. Anderson.



MALLEE-FOWL'S EGGS IN MOUND EXCAVATED.

NATIONAL MUSEUM MELBOURNE

Gilbert Whistler (*Pachycephala inornata*). Mr. Ashby found this species in the Murrayville reserve, and it was heard calling at other places.

Grey Shrike-Thrush (*Colluricincla harmonica*). Observed and heard in many directions. One bird was calling early every morning in the township.

Crested Bellbird (*Oreoica gutturalis*). Common, frequently seen, but much more frequently heard.

Black-faced Cuckoo-Shrike (*Coracina novæ-hollandiæ*). Fairly common. One nest was found about 8 feet from the ground in a horizontal limb of a mallee on a road, and it contained two eggs.

White-winged Triller (*Lalage tricolor*). A few birds were noticed on a road about half way between Murrayville and the desert.

Chestnut Quail-Thrush (*Cinclosoma castanotum*). There were several pairs in the Murrayville reserve, and others were seen in scrub along roads, and in the desert country. Searches were made for nests, but without success. They are usually hard to find. Twice male birds were seen perched on dead limbs about 12 feet from the ground uttering a call which could be heard at a considerable distance.

Southern Scrub-Robin (*Drymodes brunneopygia*). There were also several pairs of this species in the Murrayville reserve, and they were seen and heard in several other directions. Several old nests, and what appeared to be a new one, just started, were found. Quietness of movement and a knowledge of the calls are helpful in locating hese birds.

White-browed Babbler (*Pomatostomus superciliosus*). Many small parties were seen. Numerous old nests were observed, and a few containing young birds or eggs were found.

White-fronted Tang (*Epthianura albifrons*). This species was noticed in a few places where the land had been cleared, and young mallee shoots had been allowed to grow up again. A female was flushed from a nest and went away fluttering as if injured. There were three eggs in the nest, so dark that they must have been near hatching out.

Brown Weebill (*Smicrornis brevirostris*). These diminutive birds were numerous everywhere, and their calls could be heard all day long. A few of the birds were always in some mallee on the road opposite the coffee palace.

Red-tailed Thornbill (*Acanthiza hamiltoni*). Common whereever there was short mallee with undergrowth. Several were seen in the reserve close to the railway station. A nest was found in a shrub in the desert. Two heavily incubated eggs were in the nest.

Chestnut-tailed Thornbill (*Acanthiza uropygialis*). Not quite so common as the Red-tailed, but frequently seen. A bird was observed carrying nesting material into a creeper growing on a wall of the Kow Plains Homestead.

Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*). Less common than the Chestnut-tailed. A nest was seen under a large stick nest in a tall mallee.

Eastern Whiteface (*Aphelocephala leucopsis*). A few were seen in the big timber in the Duddo reserve, and others near the Kow Plains Homestead.

Shy Ground-Wren (*Hylacola cauta*). During a 20 minutes wait at Underbool, Messrs. Barrett, Bryce and Ross went about 100 yards from the railway station and heard this sweet little singer. By following the notes they were able to see the bird. Many others were subsequently seen and heard where the scrub was short and the cover good, but a nest could not be found although diligent search was made for one.

Brown Songlark (*Cinclorhamphus cruralis*). The call which Mr. A. J. Campbell interprets as " Pitch-a-paddle pitch-a-paddle " was frequently heard as the birds rose high into the air over growing crops or grass paddocks, and whenever a grass paddock was crossed a few of the birds were flushed.

Striated Grass-Wren (*Amytornis striatus*). Some years ago Mr. C. F. Cole described this elusive bird as the one which if seen at all is just disappearing. Dr. G. Anderson noticed a small brown bird just disappearing, and by making a squeaking noise with his lips he induced it to return and show itself very plainly to four of our party. Probably there were young ones about, for an empty nest was discovered in an adjacent clump of porcupine grass. This was the only Grass Wren seen, but another empty nest was found in porcupine grass in the desert.

Black-backed Blue-Wren (*Malurus melanotus*). Several pairs were seen, generally where the scrub was somewhat open. In the Danyo reserve a female was watched building a nest in grass growing through a fallen dead Murray pine.

Purple-backed Wren (*Malurus assimilis*). A few were observed in the desert, the brown patch on the wing being very clearly seen on one male.

Masked Wood-Swallow (*Artamus personatus*). Many Wood-Swallows were flying too far overhead to be identified, but a few of this species were seen perched in trees.

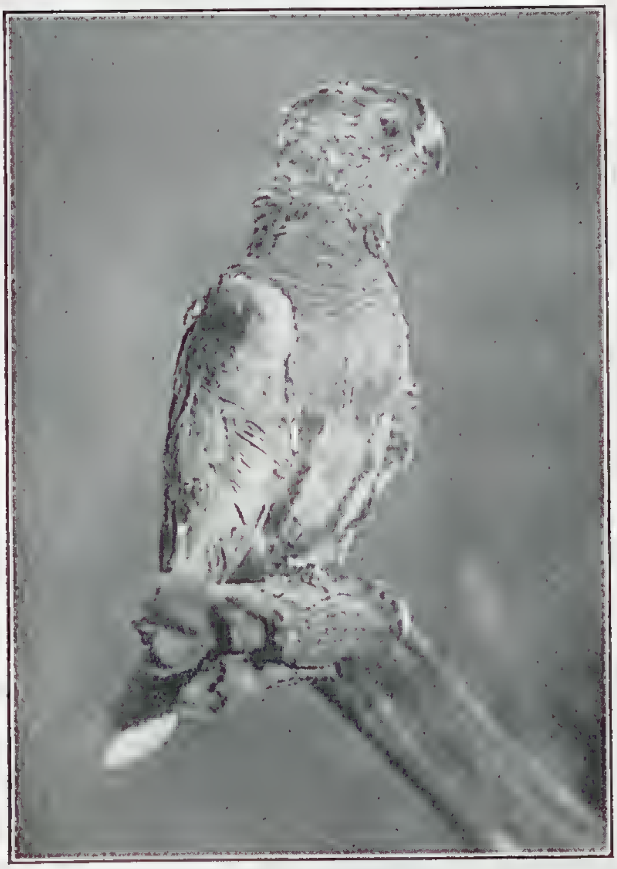
White-browed Wood-Swallow (*Artamus superciliosus*). Many of these birds were identified.

Dusky Wood-Swallow (*Artamus cyanopterus*). Many specimens of this species were seen at close range.

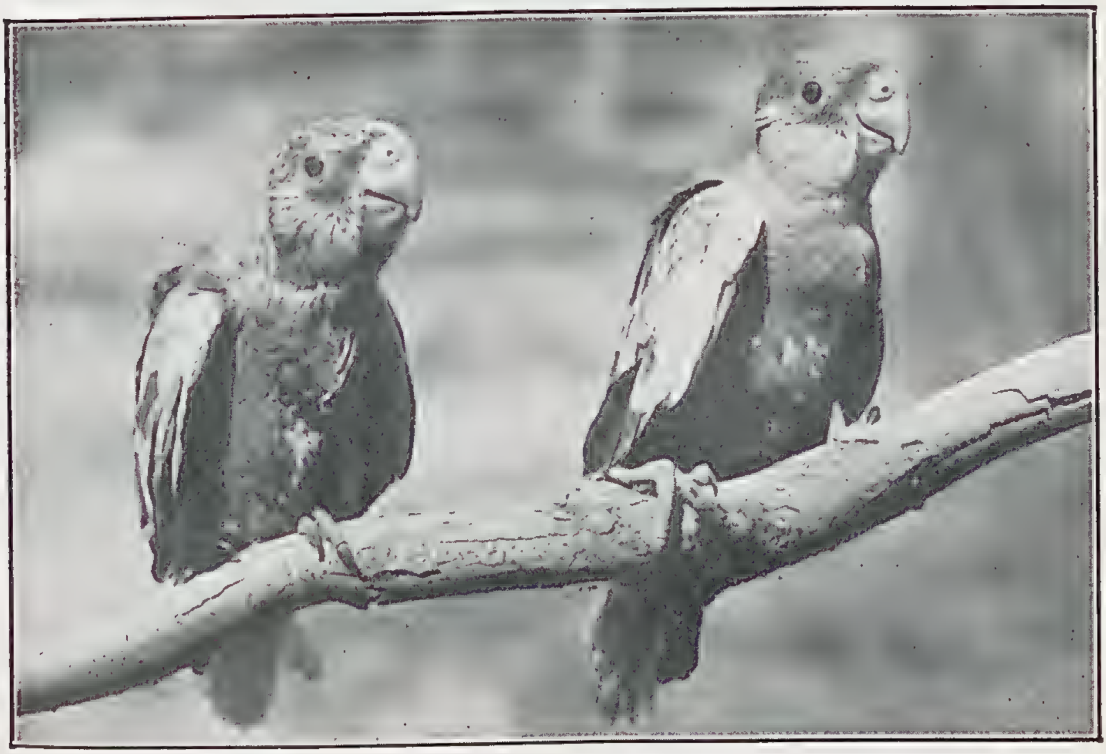
Brown Tree-Creeper (*Climacteris picumnus*). In the big timber at Duddo reserve these birds were numerous, and the shell of an egg was found on the ground.

Yellow-tailed Pardalote (*Pardalotus xanthopygus*). Seen at several places, but more frequently heard. One burrow which was being excavated was found on a road near the desert.

Red-tipped Pardalote (*Pardalotus ornatus*). Wherever the mallee was big enough to contain hollow limbs these birds were seen and heard.



YOUNG MANY-COLOURED PARROT.
(*Psephotus varius*)



YOUNG REGENT PARROTS. (*Polytelis anthopeplus*).

Photos. by Chas. Barrett.

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Brown-headed Honeyeater (*Melithreptus brevirostris*). Small parties were seen in many places. They are active little creatures and seem to be constantly on the move.

Striped Honeyeater (*Plectorhyncha lanceolata*). Met with in the Danyo reserve where a nest containing three eggs was found.

Tawny-crowned Honeyeater (*Gliciphila melanops*). Common in the desert country. A few nests were seen, one contained an egg and a young bird, and the others contained young birds.

White-fronted Honeyeater (*Gliciphila albifrons*). Also common in the desert country. One nest found was ready for the eggs, and another had been partly pulled out of porcupine grass, and, judging by the feathers on the ground, the bird had been killed.

White-eared Honeyeater (*Meliphaga leucotis*). Frequently seen and heard in all classes of country. A nest containing two fresh eggs was seen about four feet from the ground in a broom bush.

Purple-gaped Honeyeater (*Meliphaga cratitia*). Many of these birds were seen and heard in the desert country, particularly where the mallee and banksias were in bloom.

Yellow-plumed Honeyeater (*Meliphaga ornata*). Numerous everywhere. They could be seen and heard all day long. A nest with three eggs was found about 2 ft. 6 ins. from the ground in young shoots growing from the stump of a tree which had been cut down.

Dusky Miner (*Myzantha obscura*). Seen and heard near the Kow Plains Homestead.

Red Wattle-Bird (*Anthochæra carunculata*). Quite common. Frequently seen and their hoarse guttural notes heard. Several nests were found and contained either two eggs or two young birds.

Spiny-cheeked Honeyeater (*Acanthagenys rufogularis*). Seen everywhere, and their calls, which vary so much, could be heard all day. A few nests, each with two young ones, were found in Murray pines. The birds were often seen feeding on a substance which exuded from the fruit of the pines.

Australian Pipit (*Anthus australis*). Common in grass paddocks, and on fallow land.

Little Crow (*Corvus bennetti*). Although a specimen was not obtained it was thought that a Crow which was frequently seen was this species. A few nests containing young birds were seen.

White-winged Chough (*Corcorax melanorhamphus*). Several parties of these birds were seen, and a few nests were found, none of which was climbed to. In some cases a bird was sitting on the nest.

Black-winged Currawong (*Strepera melanoptera*). Seen and heard in several places, but nowhere numerous. Dr. B. Anderson saw a nest on which a bird was sitting.

Grey Butcher - Bird (*Cracticus torquatus*). Well distributed but not very numerous. A nest with three eggs was found about nine feet from the ground in a mallee.

Black-backed Piper (*Gymnorhina tibicen*). Common along roads, and on the edges of cleared land. A few nests were found, and contained young birds or eggs.

Thornbills of the Genus *Acanthiza.*

BY A. G. CAMPBELL, J.P., Kilsyth, Victoria.

PART I.

Acanthiza nana, Vig. and Hors.

(LITTLE THORNBILL)

Acanthiza nana was named by N. A. Vigors and Dr. Thos. Horsfield in 1827, from Port Jackson, N.S. Wales, probably the vicinity of Sydney Cove. See *Trans. Linn. Soc.* (*Lond.*), vol. xv., p. 226.

One of the earliest field notes is recorded with the type description. Mr. Caley sent out by the Linnaean Society of London in 1803, stated these little birds were in great numbers in the green wattle trees about his house.

Coloured figure by Gould, *Birds of Australia*, vol. iii., pl. 60, represents the South Australian form with buff well down on the breast. Figures in Mathews' *Birds of Australia*, vol. ix., pl. 449, represent the inland race with pallid under surface (right hand) and the yellow under surface of Queensland (top figure).

Type in the British Museum acquired with the Linnaean Society Collection. This is also the type of the genus.

No. 2128 H. L. White collection may be considered a plesiotype.

An excellent description of this species appears in Latham's *General History*, p. 134 (1823) under the title Dwarf Warbler, var. A, a specimen taken in New Holland being in the collection of Lord Stanley. As the author does not conform to the rules of binominal nomenclature it is not accepted as the original description of the species.

Examination of Skins.—2121 ♂, Blacktown, N.S.W.
2128 ♂, Lithgow, N.S.W. (type *A. dorothea*).
2129 ♂, Liverpool Plains, N.S.W.

These three are all alike, upper surface dark citrine with yellowish tinge toward rump; throat (only) buff; breast and flanks olive yellow; centre of abdomen citron yellow; bill brown; legs black; l. 3.7; b. .3; w. 2.0; t. 1.5; tar. .7.

2120 ♂, 2122 ☿, Rose Bay, Sydney, N.S.W., like 2128 but plumage dingy or stained (coastal).

2119 ♂, young, Woollahra, N.S.W., no sign of buff color on throat, sprouting quills being pale yellow like abdomen; crown brownish olive; ear coverts indistinct; edges of secondaries yellowish citrine.

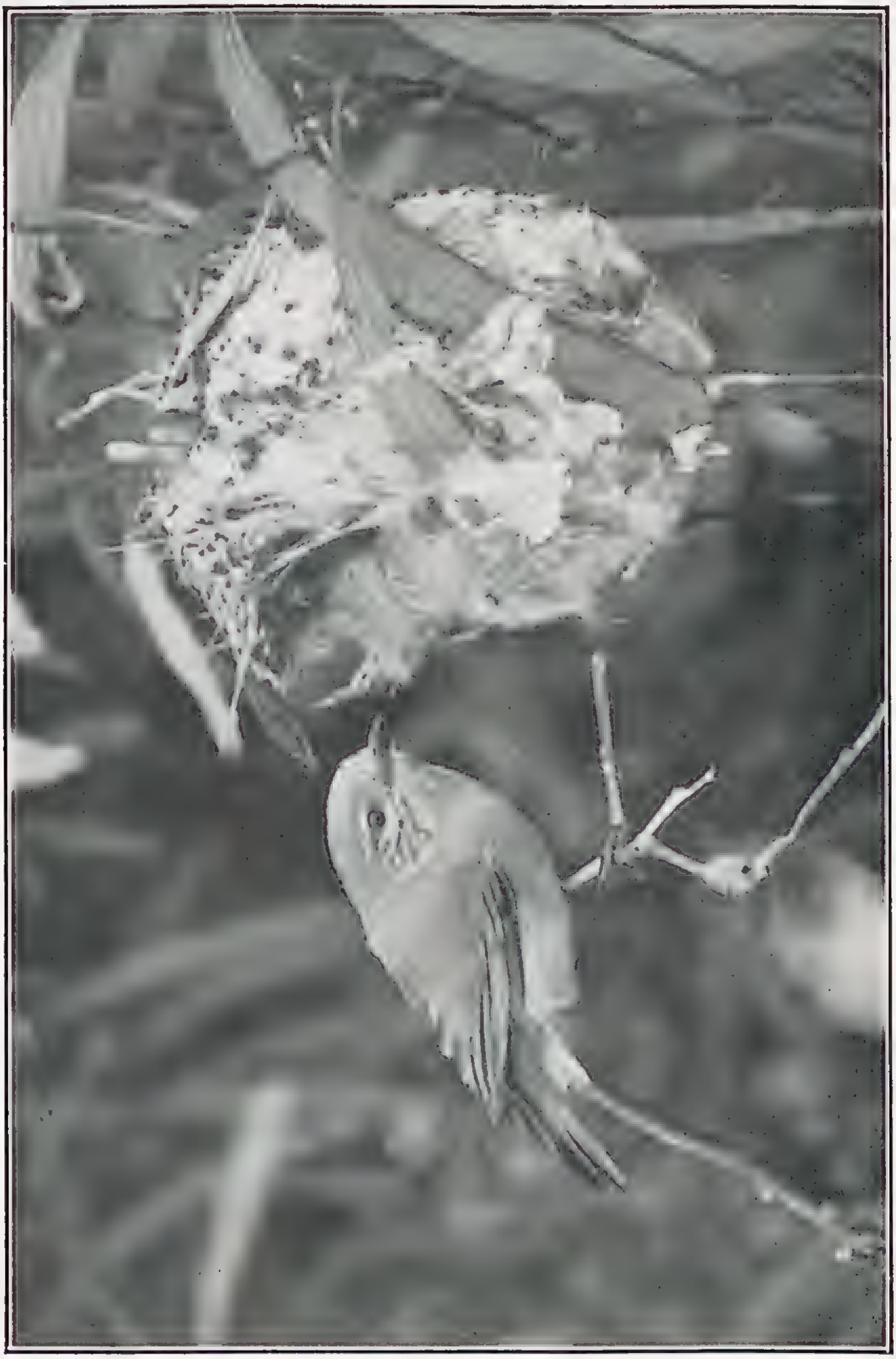
* * *

4537, Rosedale, V. (in Nat. Mus., Melb.), under surface like 2128, flanks much darker than abdomen, but the warm buff of throat runs well down to breast.

160 (76) ♂, Springvale, V., 23.10.1897 (cotype *A. mathewsi*, Hartert), A. W. Milligan coll., duller than 2128, back olive citrine; throat and upper breast buff; breast dull (light yellowish olive); abdomen olive yellow.

502 ♂, 502a ♂, You Yangs, Vic., like 2128, but breast as well as throat buff.

40 ♂, 39 ☿, Saddleworth, S.A., under surface like 2128 except that breast is buff.



LITTLE THORNBILL (*Acanthiza nana*) AT NEST.

Photo. by O. Webb, R.A.O.U.

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41 ♂, Tapton, S.A., similar to 40 and 4537.

B 1893 ♂, Grange, S.A., juvenile, like 40 but crown and upper tail-coverts buffy olive; back yellowish olive.

405 ☿, Laura, S.A. (lent by S.A. Mus.), compared with 2128 upper surface not so bright especially on wings; upper tail-coverts brownish olive; under surface yellower, with more buff on upper breast; under tail-coverts cream buff.

* * *

2131 ♂, 2130 ☿, Kow Plains (Mallee), V. (types *A. pygmaea*, Milligan), a paler and slightly smaller form of 4537; throat cinnamon buff well down on breast; abdomen olive yellow; flanks dark yellowish citrine; bill brown ♂, black ☿; length 3.4 in.; wing 1.9in.

42, Callington (Mallee), S.A., similar to 2131.

507 ♂, Coorong, S.A. (lent by S. A. White), similar to 2131.

* * *

2126 ♂, 2124 ☿, Cobborah, N.S.W. (Sept. 1916), (Aug., 1914), a pallid form of 4537 with very light under surface (primrose yellow), flanks being olive citrine; wing 2.0 in.

415 ♂, Cobborah, N.S.W. (Sept., 1920), like 2126 but crown greyer and under surface brighter (reed yellow) becoming citron yellow on abdomen. (This and two following lent by T. P. Austin.)

416 ☿, Cobborah, N.S.W., similar to 2124; tail band wider than usual .35 in.

417 ♂, Cobborah, N.S.W., immature, crown buffy olive, becoming citrine on back; primaries and secondaries edged citrine; throat (only) light buff, shaft streaks not showing.

* * *

2132 ♂, 2133 ☿, Dawson River, Qld. (types *A. n. dawsonensis*, H. L. White), like 2126 in colour, though lighter buff on throat (only); wing 1.9 in.; bill .32 in. (larger); tarsus .6 in. (shorter).

427 ♂, Dawson River, Qld., similar to 2132; bill and legs black.

527 ♂, Blackall, Qld., like 2132 but lighter on throat (only); shaft streaks indistinct; flanks tinged citron yellow.

* * *

404 ♂, Charleville, Qld. (type *A. modesta*, lent by Qld. Mus.), paler than 2132; crown and back buffy olive, becoming yellowish olive on rump and outer edge of tail feathers; upper tail-coverts umber; wings drab; ear coverts drab with light shaft streaks; under surface olive buff; brighter on abdomen; throat and breast faintly light buff (light shaft streaks and frontal spot obsolete); wing 2.0 in.; tail bar very wide .45 in.

* * *

2118 ♂, 2115 ☿, Scone, N.S.W. (types of *A. n. belltrees*), brighter than 2128, especially on rump, outer webs of wings and tail, which are yellowish citrine; throat (only) cinnamon buff; breast and abdomen strontian yellow; flanks yellowish citrine.

* * *

4568 ♂, Ravenshoe, N. Qld. (3,000 ft. elevation), upper surface brightest citrine like 2118; crown darker; throat much darker (clay colour); breast tinged buff in centre and olive yellow on sides; abdomen and flanks lemon chrome; bill and legs brown; wing 2.0 in.

4569 ☿, Ravenshoe, N. Qld., like mate, but colour patch on throat duller and more restricted in area; wing 1.8 in. (These two birds are types of *A. n. flava*, H. L. White).

REMARKS.

The variation shown by this species is largely that of the prevailing color of the under surface which is at least ten tones between brightest and lightest.

Assuming the type to come from the vicinity of Sydney then *A. nana* has the olive yellow under surface (the middle tone). Range, N.S. Wales from about Sydney southward. Victorian specimens although the same tone, show the buff patch on the throat slightly larger, that is extending down on to the upper breast. Skins from the South Australian highlands are like Victorian, one specimen coming from Laura, 150 miles north of Adelaide. These are *A.n. mathewsi.* Range : Southern Victoria, as far west as the Grampians (where I have seen the species) and the highlands of South Australia. Cotype 160 (76) is the dullest specimen of the southern race.

For the northern and brighter race, *A. n. belltrees*, the range is the highlands of northern N.S. Wales. It is not at all clear whether this extends into Queensland or whether *A. n. burtoni*, Mathews is a still brighter form.

The Blackall bird 527 appears to belong to this race being lighter on upper surface and brighter on under surface.

The most northerly form, *A. n. flava*, comes from the elevated but isolated region near Herberton, N.Q. The northern races have the secondaries prominently edged yellowish citrine.

Pallid races are found to the west of the Divide in drier pastoral regions, Cobborah specimens being somewhat similar to those from the Dawson River, Q.; both have a light (primrose yellow) under surface, name *A. n. dawsoniana.* Again there is the sub-species in the Mallee a pallid form of the olive yellow under surface and larger throat patch. This being in flat tertiary country of low rainfall, a younger land surface widely different from the highlands geographically, shows also slightly smaller size and is *A. n. pygmaea.* Range, Mallee scrubs of adjacent portions of Vic., S.A. and N.S.W.

It is interesting to note that *A. modesta*, Central Queensland, proves to be a sub-species of *A. nana* and the lightest of all, having lost all vestige of yellow color from the under surface and most of the citrine green from the upper surface. This approaches what might be considered a specific difference. The width of tail bar, though wider than typical, associates it with *A. nana* and not with *A. lineata* as is generally supposed. The type description refers to the slight tinge of rufous on the throat.

Young birds are interesting, and whether in S.A. (1893) or in N.S.W. (2219 and 417) they show the crown more olive than the back, which feature is not noticed in adult, and the edges of the secondaries are much brighter. In these two ways the young of southern races exhibit characters which occur in adult birds of the brighter northern races only.

One bright bird, 415, taken at Cobborah, N.S.W., 1920, may indicate the possibility of the species being influenced in colour by abundant food supply in a year of plenty, or it may be merely an individual variant toward the parent and brighter race within the range of a pallid form.

Acanthiza inornata, Gould.

(WESTERN THORNBILL)

John Gould described this from the Swan River, Western Australia, in 1840. (See *Proc. Zool. Soc. Lond.*, p. 171) and figured it in *Birds of Australia*, vol. iii., pl. 59.

The darker race is figured in Mathews *B. of A.*, pl. 449 (bottom figure).

Type female No. 17581 (515) is in the Philadelphia Academy, U.S.A.

Two other specimens from the Gould collection are in the British Museum, one from Swan River and the other from King George's Sound, " a darker bird."

No. 2255 in H. L. White collection may be considered as a plesiotype.

Examination of Skins.—2255 ♂, Kelmscott, W.A., upper surface olive; forehead crescents light buff with dusky tips; rump tinged yellowish olive; upper tail coverts and base of tail brownish olive; under surface pale olive buff; flanks and under tail coverts darker; length 3.7 in.; bill .32 in.; wing 1.9 in.; tail 1.5 in.; tarsus .7 in., light brown.

43 ♂, Claremont, W.A., similar to 2255.

44 ♂, Guildford, W.A., like 2255 but throat whitish, legs dark brown, wing 2.0 in.

45, Moora, W.A., like 2255, but bill .35 in. (larger); legs black; wing 1.8 in.; quills of first four primaries are tawny, not black; under tail coverts white.

* * *

2252 ♂, 2253 ☿, Wilson's Inlet, S. W. A., upper surface brownish olive; darker than 2255; forehead crescents tawny; upper tail coverts dresden brown; under surface chamois; distinct dusky edges to throat feathers; wing 1.9 in.; bill .4 in.

2246 ♂, 2251 ☿, Irwin's Inlet, S. W. A., like 2252 but chin dark ☿; crown very dark ♂.

180 ☿, Wilson's Inlet, young, shows dusky fringes only to feathers of crown; russet edgings on wing coverts and secondaries; bill .3 in.; tail short.

6675, Lake Muir, S. W. A., like 2252 but flanks lighter (isabella); shaft stripes on ear coverts not prominent.

2254 ♂, 2249 ☿, Stirling Ranges, W.A., not so dark as 2252, appear to be a connecting link with 2255.

2250 ♂, 2247 ☿, Stirling Ranges, W.A., lighter than 2254 and similar to 2255.

B.389 ♂, Warren River, W.A. (lent by S.A. Mus.), similar to 2254.

B.391 ☿, Warren River, W.A., like mate but darker on crown, back and under surface; feathers of throat having faint dusky edges.

6669 ♂, Warren River, W.A., young, faint tawny spots on forehead, resembling crescents; throat fluffy; ear coverts more distinct than 6675, but not equal to 2252.

REMARKS.

From this series it is evident there is a marked variation in the extreme south west, in a small region around Cape Leeuwin, lying within the 30-inch isohyet.

The type race has upper surface olive, under surface olive buff, throat whitish and plain. The darkest race is *A. i. mastersi*, upper surface brownish olive, under surface chamois, throat buff with dusky edges to feathers.

In between the two extremes, birds from Stirling Ranges and Warren River provide intergradation, but are not worthy in themselves of subspecific rank. It is quite possible that a larger series of skins will exhibit finer connecting links because the species is found only in the coastal fringe of Western Australia.

The latest record is from Carnarvon, N.W. Aus., 500 miles north of Perth and is described as a new subspecies " with a distinct greenish tinge on the back." (See Mathews, *Aus. Avi. Rec.*, vol. ii., p. 76.)

Skin 45 comes from a locality, Moora, about half way . It shows a larger bill, smaller wing and a peculiarity on the primaries, differences which indicate subspecific variation as the species goes northward from the type locality.

It is plain that *A. inornata* represents in Western Australia, the species *A. nana* that is so common in eastern Australia. The two species are descendants of a stock, which was distributed across the Continent before the development of the vast interior deserts.

Acanthiza pusilla, Shaw.

(BROWN THORNBILL).

This, the first discovered species of true *Acanthiza*, was described by Shaw in White's *Journal of Voyage to New South Wales*, p. 257 (1790).

The bird was seen and noted probably in the vicinity of Sydney Cove and was named "*Motacilla pusilla*, Brown Warbler, pale beneath with a band of brown toward the tip of the tail," an etching is found in the Journal.

Coloured figure is found in Gould *Birds of Aus.*, vol. iii., p. 53. The southern insular form is represented pl. 54.

In Mathews, *B. of A.*, vol. ix., pl. 448 are figured four other races, viz., *A. p. macularia*, Vic. (right hand), *A. p. samueli*, S.A. (bottom left hand), *A. p. bunya*, Qld. (middle left hand), the top figure being from S.W. Aus.

Vigors and Horsfield *Trans. Linn. Soc., Lond.*, vol. xv., p. 227 (1827) give a good description of a skin in the Zoological Society Museum.

The specimens figured and described by John Gould are probably identical with those in the British Museum from the Gould collection (see *Catalogue of Birds*, vol. vii., p. 295).

Skin No. 2112 in H. L. White col. may be considered a plesiotype.

Examination of Skins.—2112 ♂, Sutherland, Botany Bay, N.S.W., upper surface brownish olive, forehead feathers with dusky fringes, also light crescents which show between the fringes and the dark bases, upper tail coverts dresden brown; tail bar .3 in. wide, spot on central feathers reduced to the shaft only, faint edging of white on tips of three outer feathers; throat and breast striated; flanks and under tail coverts buffy citrine; length (inches) 3.9; bill .32; wing 1.9; tail 1.7; tarsus .7 (brown).

2111 ♂, Roseville, N.S.W., like 2112 but forehead crescents fewer; under surface duller; flanks greyer; under tail-coverts cream.

2108 ☿, Sydney, N.S.W., like 2111 but still more dingy from the grime of a city; dusky fringes on forehead almost gone, tail feathers much worn.

4 ♂, Blue Mts., N.S.W., lighter than 2112, upper surface olive, becoming dark citrine on back and rump; all forehead feathers plain clay colour to the base with dusky fringes only; upper tail-coverts darker (raw umber); throat and breast with bold black striations; under tail-coverts warm buff.

2113 ♂, Mulgoa, N.S.W., larger and darker than 2112; no white tips to tail; wing 2.1 in.

2109 ♂, Tarana, N.S.W., similar to 2113; bill .35 in.; tarsus .8 in.

12729, Tarana, N.S.W., like 2113 but central tail spot absent; outer webs of six primaries edged buffy olive, making conspicuous patch.

2104 ♂, Scone, N.S.W., upper surface olive lighter than 2112; bill black and smaller .3 in.; faint white edging to outer tail feather.

2105 ♂, Scone, N.S.W., like 2104 but bill larger .35 in.

* * *

1. Blackall Range, Qld., upper surface light olive, becoming citrine on rump much lighter than 2112; forehead feathers clay colour; upper tail-coverts dresden brown; colour extending down tail; flanks deep olive buff; striations light on breast, faint and small on throat.

3. Blackall Range, Qld., similar to 1; wing 2.0 in.

2. Richmond Range, N.S.W., like 1, but forehead darker (ochraceous tawny), nearly plain; tail with distinct white tips to inner webs; flanks cream buff; under tail-coverts cream.

NOTE.—Numerals 1 to 90 Edwin Ashby collection.

2013 ☿, Clarence River, N.S.W., similar to 2; bill .3 in., black.

D8684 ♂, Brisbane (lent by Qld. Mus.), similar to 2103; forehead plain tawny; throat striations small; wing 2.0 in.

9994 ☿, juv., Coomera River, Qld., (lent by Aus. Mus., Sydn.), similar to 2103.

456 ♂, Mt. Tamborine, Qld. (this and the following lent by S. A. White), similar to 2.

547, Fraser Island, Qld., similar to 2 and 2103.

2102 ♂, Rio Station, Dawson River, Qld., like 1, but under surface mostly white; throat striations faint; flanks buffy citrine; bill and legs black.

(Type *A. p. dawsonensis*, see *Emu*, vol. xxii., p. 64.)

* * *

512, Margaret Id., Port Albert, V. (in R.A.O.U. col.), forehead feathers clay colour to base, but upper surface bright brownish olive like 7454; throat striations grey.

7454 ♂, Phillip Id., Vic. (Port Western), upper surface darker than 2112; forehead crescents darkest (cinnamon brown); upper tail-coverts prouts brown (colour running down to subterminal bar); central tail spot obscure; faint edging of white to outer feather; under tail coverts warm buff; bill .38 in.; wing 2.0 in.; tarsus .8 in. Plesiotype *A. macularia* of Milligan.

2077 ♂, Phillip Id., V., like 7454 but lighter crescents; tail much frayed.

2076 ♂, immature, Phillip Id., V., forehead crescents indistinct; throat striations greyer than 7454 and not well defined; under tail-coverts light cream, longer ones dusky with white tips; bill and legs light brown.

2074 ♂, Cheltenham, V., similar to 2077, and lighter than 7454; under tail-coverts lighter than flanks, with faint light tips.

2075 ☿, Cheltenham, V., like 2074, but with under tail-coverts distinctly light tipped.

512a ♂, Somerville, V., 2107 ☿, Kilsyth, V. Both similar to 2077.

5 ♂, Mt. Dandenong, V., upper surface olive like 4, but upper tail-coverts lighter (dresden brown); and crescents fewer; spot on central tail feathers large; under tail-coverts with broad light fringes.

6 ♂, Yinnar, Gippsland, V., like 2112, but crescents very distinct with wider dusky fringes; upper tail-coverts brussels brown; no white on tail; under tail-coverts dark like flanks and tipped cream.

* * *

13 ♂, Cape Jervis, S.A., somewhat like 6 and 2112, forehead crescents ochraceous buff, but with fuscous bases and dusky fringes most distinct; throat striations bold but smaller, under tail-coverts warm buff, bill and legs black. (Type *A. p. cambrensis*, see *Emu*, vol. xxii., p. 64.)

9, Lucindale, S.A., similar to 13, no white tips to tail.

11 ☿, Mt. Compass, S.A., similar to 13, bill stout .36 in.; much attrition on wings and tail.

10, Mt. Compass, S.A., immature, upper surface browner than 13, crescents indistinct; throat greyish with small indistinct flecks; long feathers of lower flanks buff like under tail-coverts.

12 ♂, Kangarilla, S.A., like 13, but under tail-coverts darker like flanks and tips cream.

14 ♂, Delamore, S.A., similar to 12.

* * *

103 ♂, Wilson's Inlet, S.W. Aus., upper surface dark brownish olive, darker than 2112; upper tail-coverts cinnamon brown; flanks tawny olive, under tail-coverts cinnamon buff; edging of white on outer tail feather; tail bar .3 in. wide.

(Type *A. p. leeuwinensis*, see *Emu*, xxii., p. 63, in A. W. Milligan collection.)

102 ☿, Wilson's Inlet, S.W.A., similar to 103, bill and legs brown.

107 ☿, Wilson's Inlet, S.W.A., similar to 103, but more white on tail, four pairs being marked.

104 ☿, immature, Wilson's Inlet, S.W.A., browner than 103, crescents not distinct; throat striations grey and indistinct.

253 ☿, Augusta, S.W.A., like 107, white tips to four pairs of tail feathers; under tail-coverts darkest (ochraceous tawny).

2156 ☿, Irwin's Inlet, S.W.A., similar to 103, small spot on central tail feathers.

(Collector's note on label " Lives chiefly in jarrah forests.)

* * *

Insular Forms.—

16a ♂, 17 ☿, Sandford, Tas., crown and back olive, lighter than 2112, becoming citrine on rump; crescents light buff with defined fuscous bases; tips of outer tail feathers distinctly edged white; bill .38 in.; wing 2.2 in.; legs light brown.

16 ☿, Sandford, T., similar to 17, except that spot on central tail feathers is large and roundish.

2083 ♂, Hobart, T., like 16a, but has back of head greyer.

2084 ☿, Hobart, T., upper surface more citrine than 2083; under tail coverts with faint light tips.

18, Lake Sorrell, T. (2,300ft. elevation), upper surface and flanks lighter than 2083.

19, Scottsdale, T., pale about head like 18; flanks with distinct tinge of ochraceous buff in lower feathers and in butts of under tail coverts, tips of latter cream.

2085 ♂, Launceston, T., like 2083, but forehead more tawny and plainer (that is without dark spots below crescents); throat striations light.

2086 ♂, Bagdad, T., similar to 2083.

2088 ♂, King Island, Tas., upper surface olive without the citrine wash as in 2083; crescents not as distinct; throat striations bolder; under tail coverts white; bill very large .5 in.

(Type *A. magnirostris*, *Emu*, ii., p. 202.)

2079 ☿, immature, King Id., T., upper surface brownish olive, upper tail coverts brussels brown, a wash of same color over wings and tail.

2087 ♂, immature, King Id., T., similar to 2079; bill .45 in.

* * *

R1360 = 1128 ♂, Kangaroo Id., S.A., upper surface, dark greyish olive, tinged on rump with dark citrine; upper tail-coverts raw umber; striations grey but plentiful; flanks greyish olive; bill .35 inch, black.

(Type *A. halmaturina*, *Emu*, vol. v., p. 141.)

HLW 2080 ♂, Kangaroo Id., S.A., like 1128, but crescents darker and sides of breast greyer; tail with faint white edging on outer feather.

505 ♂, Birchmores Lagoon, Kangaroo Id. (lent by S. A. White), like 1128 but abdomen and flanks much darker (buffy olive).

HLW 2081 ♂, immature, Kangaroo Id., back tinged with brown; crescents indistinct; flanks and under tail-coverts similar buffy olive.

REMARKS.

The type race of *A. pusilla* from the vicinity of Sydney, N.S.W., has upper surface olive, tinged with citrine on the rump, the tawny crescents of the forehead a noticeable feature (see Gould's plate). Each feather has a dull spot on the base as well as a dusky fringe, both the base and the fringe helping to define and set off the crescent between. This is a small feature, but an important one to follow. Two or three outer tail feathers are scalloped or narrowly edged with white on the inner web near the tip. Throat and breast striations are small and dark grey, flanks buffy citrine, under tail-coverts cream. In the Blue Mountains flanks and under tail-coverts are darker, though the forehead (4) is more tawny and without prominent crescents. Mulgoa and Tarana birds are darker still and larger, but have lost the white edging to the tail feathers. Skins from these localities are very similar to those found throughout southern Victoria. Individual variation is particularly noticeable in the size of the forehead crescents, the width of the dusky fringe and in the size of the spot or rudimentary bar on the central tail feathers. But individual variation does not account for the change to warm buff under tail-coverts, mottled fuscous under wing-coverts, and the bold black striations on throat and breast. These are regional and in them lie the characters of *A. p. macularia*, which ranges through the highlands of southern N.S. Wales and Victoria. The type of this sub-species came from Port Western in 1830 and a plesiotype was described by A. W. Milligan in 1912 (see *Emu*, vol. xii., p. 140), a feature being made of the loose erectile feathers of the forehead.*

Specimen 512 from Margaret Id., V., shows a great difference in the forehead, being without any dusky markings, that is plain tawny, in this matter resembling No. 5, Vic. and No. 4, N.S.W. These three, therefore, exhibit a throw back character that appears to belong to a far back ancestor, this variation not being accompanied by any

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*See plate *Emu*, xvi., p. 171.

other noticeable difference. In *A. ewingi* this character becomes a fixed and specific feature.

As highlands in Victoria, over 1,000ft. elevation, extend to the Pyrenees and the Grampians, it is anticipated that these ranges will prove the western limit of the subspecies *macularia.*

A great break then occurs in the nature of the region to the west and north and over 200 miles of flat tertiary country there is no record of *A. pusilla* being found.

In Mt. Lofty, S.A., however, the species occurs as plentifully as in the Victorian highlands. The majority of birds from South Australia are larger than Victorian birds, the colour of the forehead is lighter and the crescents are much more distinct, for the reason that the fuscous base is darker, giving a very sharp contrast with the buff portion of the feather. These differences though slight are consistent and make a good sub-species in a region already isolated geographically. The South Australian subspecies is *A. p. samueli* (syn. *A. p. cambrensis*).

Then come the specimens from South-West Australia, 102-107, undoubtedly allied to this series and even further differentiated than the South Australian variety. This is *A. p. leeuwinensis* which differs from the type race of the species in having the upper surface dark brownish olive, forehead crescents tawny, flanks tawny, olive under tail-coverts and axillaries cinnamon buff. The presence of *A. pusilla* in S.W. Australia is a surprise, but affords direct corroboration of the assumption that the western part of the Continent got its avifauna from eastern Australia before geologic change placed the vast barriers of desert and sea between the two portions.

Northward from the type locality, Sydney, is a different class of variation, back olive, forehead tawny (no dark base to feathers), under surface lighter, throat striations greyer. This phase inhabits the coastal rivers of northern N.S. Wales and southern Queensland, *A. p. bunya** being the subspecific name, its type being taken during the R.A.O.U. camp-out in the Bunya Mts., Brisbane Congress, 1919.

The lightest race is *A. p. dawsonensis*, having back light olive, forehead plain clay colour, tail tipped white, under surface white with faint tone on flanks, and very small flecks on throat. The range of this, the most northerly variety of *pusilla*, is not yet determined, but probably covers regions of high elevation on the spurs of the Dividing Range about the tropic line. There is, however, no record further north than Dawson River. At Herberton, N. Qld., lat. 17°, *Acanthiza katherina*, an isolated mountain species occurs.

Immature birds are always interesting. Apart from youthful features of indistinct crescents and striations, they have a browner mantle than adults, which is particularly noticeable in insular forms (see 2079 and 2081) where the tone of adult differs appreciably from type. There is no evidence that the white on the tail tips varies in amount with age, nor does the colour of under parts alter much from youth to maturity.

**Bull. Brit. Orn. Club*, vol. xl., p. 105.

The key character of *Acanthiza pusilla* with the whole of its variations, both individual and subspecific, is tail bar .3 inch wide on the third feather, reduced on the central feathers to a round or oval spot. Not in any skin of this whole *pusilla* series is there any connection whatever with *Acanthiza pyrrhopygia* Gould, a distinct and separate species. Only in what are rightly termed generic characters do the two species resemble one another.

Insular Forms. Gould who made *A. diemenensis* a separate species, stated that it had a much more lengthened bill and altogether was a larger bird than *A. pusilla.* As he was comparing with the type race of N.S. Wales, these remarks still hold good. But since Gould's day much has been learned of a variety, ranging over southern N.S.W. and Victoria, which is an intermediate, namely, *A. p. macularia.* When compared with this subspecies, the difference between the Tasmanian bird and the mainland bird is not so great. Hence the remark in *Australian Museum Catalogue,* vol. i., p. 272. "The difference in colour of upper parts shown in Gould's figure of *A. pusilla* and *A. diemenensis* is not apparent in a large series of skins in this collection."

The difference between *diemenensis* and *macularia* consist chiefly in the former having (*a*) forehead crescents sharply defined by a pronounced fuscous spot at base of feather below the crescent; (*b*) distinct white edging to outer tail feathers; (*c*) abdomen less yellow and axillaries cream instead of white; (*d*) flanks lighter buffy olive instead of darker olive buff.

It will be noticed that there is some individual variation in the Tasmanian skins under review, an interesting point being the spot or rudimentary bar on the central tail feathers, which ranges in size from an oval .05 in. across to a roundish spot .15 in., but never at any time is it a band.

One specimen from Launceston has the fuscous bases to forehead feathers obscure as in *macularia.* This may be an immature bird, which in many instances tends to exhibit some trait of an earlier race not always noticeable in the adult.

The King Island birds, *A. p. magnirostris,* are easily distinguished by the long bill at least .1 inch longer than any other *Acanthiza* and by abdomen and under tail-coverts being white.

Another island subspecies is *A. p. zietzi* Kangaroo Id., named by A. J. North in 1904, and characterised by the ashy shade of the upper parts. During the A.O.U. Congress, Adelaide, 1906, several specimens were obtained which show this to be very distinct from its nearest mainland ally *A. p. samueli* (which has been shown somewhat similar to *A. p. diemenensis*). The difference in tone of upper surface alone makes it almost worthy of specific rank. There is nothing obscure about its systematic position as a separate geographic race and the greatest variation from the type *pusilla.* Skin 505 is almost as dark on the under surface as the dark *Geobasileus hedleyi* from the mainland opposite.

Acanthiza katherina, De Vis.

(MOUNTAIN THORNBILL)

This species was first described by C. W. De Vis in *Annals of Queensland Museum*, 1905, p. 43, being discovered in Bellenden Ker Mts., Herberton District, North Queensland.

Types male and female are in the Queensland Museum, Brisbane. There is no coloured figure of the species.

Examination of Skins.—406 ♂, Bellenden Ker, Qld., 4,000ft. elevation (lent by Qld. Mus. Type of species). Upper surface brownish olive, tinged yellowish, citrine on rump (coverts missing); forehead crescents buff indistinct, but light to base of feathers; throat and breast whitish with faint flecks of black; sides of breast buffy olive; flanks buffy citrine; centre of abdomen pale yellow; tips of outer tail feathers edged white; length 3.7 in.; bill .35 in.; wing 2.1 in.; tail 1.7 in.; tarsus .75 in.

407 ♀, Bellenden Ker, Qld. (co-type lent by Qld. Mus.), like 406, upper tail-coverts brussels brown; outer webs of tail citrine like rump; outer webs of wing yellowish citrine; but more white on tail tips and fewer markings on throat.

4570 ♂, Ravenshoe, Qld., 3,000ft. elevation, similar to 406 (in H. L. White collection).

3579 ♂, Herberton, Qld., Dec., 1889, (lent by Aus. Mus., Syd.), like 406 but no white tips to tail; flanks and under tail-coverts olive; bill black; legs brown.

REMARKS.

This species appears to be confined to the elevated regions of North Queensland about latitude 17°. Two other *Acanthizæ*, *A. nana flava* and *Geobasileus squamatus* have been taken hereabouts. Further research may prove this region to be a relic of former Australian conditions and to contain what may be considered original types of fauna.

Among *Acanthiza* this species can claim to possess characters which are found in *pusilla* series as well as in *pyrrhopygia* series. These two divergent specific groups might easily claim a common parentage in an ancestral form of which *A. katherina* is the remaining example.

The general characters are those of *A. pusilla*, that is brownish olive above, upper tail-coverts brussels brown, tail with very little white at tip. But it can be distinguished by the forehead being indistinctly marked with crescents, the feathers being buffy with dusky fringe only; the throat also is less marked, the bold striations of *pusilla* giving place to dull indistinct fleckings not spreading to the breast. While the sides of the body are extensively coloured buffy citrine much darker than any other *Acanthiza*. The width of tail bar is a key character being .4 inch wide on the third feather, and consistent in all four specimens. Another feature of the tail is that the outer webs are colored, not brown like tail-coverts, as in *pusilla*, but citrine like rump. Further outstanding characters are the rictal bristles which are larger and stronger than in any other species and the wing formula which shows that this has the longest and strongest pinions, only equalled by robust specimens of *A. p. diemenensis*.

The nearest localities in Queensland from which *A. pusilla* is recorded are Dawson River and Burnett River, both at least 600 miles to the south east of Herberton and from these places the specimens prove to be the northern race, *dawsonensis,* with tawny forehead and white under surface, not in any way linking *A. katherina* with *A. pusilla.* A considerable gap therefore being evident between the two both in distance and in characters, provides the reason for making *A. katherina* a full species.

Acanthiza ewingi, Gould.

(TASMANIAN THORNBILL).

The species was first described and figured by John Gould in *Birds of Australia* 1848, from Tasmania, but in 1865 on publishing his *Handbook,* Gould put *ewingi* as a synonym of *A. diemenensis,* as no further specimens had been procured.

Coloured figures Gould *Birds of Aus.,* vol. iii., pl. 55, and also Mathews, *B. of A.,* vol. ix., pl. 451 (bottom figure).

Type (no sex) No. 17587 (527) is in the Philadelphia Academy, U.S.A.

Nos. 2242 and 2241 in H. L. White collection may be considered plesiotypes.

Examination of Skins.—2242 ♂, Hobart, Tas., upper surface olive, tinged brownish; forehead feathers ochraceous tawny; throat and breast grey with indistinct dark flecks; wing with five primaries edged tawny; length 4.2 in.; bill .35 in.; wing 2.1 in.; tail 1.8 in.; tarsus .85 in.; bill and legs brown.

2241 ♀, Hobart, T., similar to 2242; wing 2.0 in.

67, Ringarooma, T., similar to 2242, abdomen and under tail coverts white.

69 ♀, Latrobe, T., plumage slightly richer than 2241.

65 ♂, Mt. Wellington, T., like 2242 above, but throat and breast much darker owing to heavier flecking, bill and legs nearly black.

70, Mt. Wellington, T., similar to 2242, legs light brown.

1364 ♂, Hobart, T., similar to 2242. On this skin now in National Museum taken A.O.U. Congress, 1903, the species was reinstated after being in obscurity for 50 years.

2243 ♂, Launceston, T., like 2242, but frontal patch distinctly smaller in area; bill .3 in.; wing 1.9 in.; tail 1.8 in.

2240 ♂, King Island, T., plumage like 2243, but forehead patch smaller in size and tone lighter (clay colour), also wing patch lighter.

(Type *A. rufifrons,* see *Emu,* vol. ii., p. 203.)

REMARKS.

This species was lost to ornithological records for very many years until in 1902 a specimen was procured on King Id. (2240). In 1903 during the A.O.U. session in Tasmania, several specimens of typical *ewingi* were obtained about Mt. Wellington in the south and Launceston in the north. There can be no reasonable doubt about it being a good species. Gould's diagnosis was absolutely correct, and there should be no confusion with *A. diemenensis* as the following will show :—

A. ewingi		*A. p. diemenensis*
brownish	back	olive
uniform colour	forehead	light & dark crescents
5 primaries tawny	wing	no colour patch
white	abdomen	yellowish
white	under tail-coverts	olive buff
irregular grey	throat striations	plain black
greyish olive	flanks	dark olive buff
.3 to .35 inch light in color	bill	.4 inch dark
.8 to .85 inch	tarsus	.7 to .75 inch
1.8 inch	tail	1.6 inch

The male bird usually has the longer wing. One skin (65) a well developed adult, shows a darker plumage, bill and legs than typical of the species. The tail bar is inclined to be slightly wider than *A. pusilla*, .35 inch.

In a limited area like Tasmania, there does not appear much scope for regional variation and subspecific difference, nevertheless, the birds from the north show somewhat lighter plumage than those from the south, while the frontal patch is noticeably smaller. Another reason for giving *ewingi* specific rank lies in the fact that on the same island of Tasmania and found in the same thickets there is a good subspecies of *A. pusilla*, namely, *diemenensis*, and it does not seem reasonable to allow two subspecies in one region, unless, of course, it could be proved conclusively that they arrived in the locality from different directions.

A close comparison of *A. ewingi* with *A. pusilla* of northern N.S. Wales establishes the fact that they are intimately connected by the tawny forehead as well as by the white axillaries and under tail coverts. *A. ewingi* thus appears to be a sport or throw back toward an earlier race and the plain tawny forehead has become a fixed specific character distinguishing it from all the southern forms of *A. pusilla* which have crescentic forehead markings.

Acanthiza lineata, Gould.

(STRIATED THORNBILL).

John Gould described this from South Australia in 1838 (see *Synopsis Birds Aust.*, pt. iv., pl. 59: and figured it in *Birds of Aus.*, vol. iii., pl. 61 (1848) but the lighter phase of crown is represented, probably from Liverpool Plains, N.S.W.

In Mathews, *B. of A.*, vol. ix., pl. 450, are two figures, the bottom one being of the northern race with brighter under parts.

Type male No. 17598 (533) is in the Philadelphia Academy, in U.S.A. This bird is said to be labelled N.S. Wales. Gould considered the species in S.A. identical with that of N.S.W. Two specimens in the British Museum from the Gould collection are labelled Australia.

Specimen 48 now in National Museum, Melbourne, may be considered a plesiotype in Australia. It is significant that this is a little brighter; it does not clear up the contention that N.S. Wales and not S. Aus. was the type locality.

Dr. Witmer Stone writes, 27 June, 1923: "I have carefully compared the specimens, and find that your example of *A. lineata* (48) matches the type (No. 17598) very closely. The type is just a very little duller or browner on the back due to exposure to light during the years it was on exhibition."

NOTE.—Vigors and Horsfield *Trans. Linn. Soc. Lond.*, p. 227 (1827) described under the name of *Acanthiza buchanani* a bird which might be *A. lineata* except for one particular "uropygiam coccineam" which appears to have invalidated this as a type description.

Examination of Skins.—2230 ♂, Tarana, N.S.W., upper surface olive citrine, yellowish toward rump; crown raw umber with white shaft streaks; rump brown like crown; throat and breast whitish with dusky striations; abdomen yellowish; flanks dull citrine; length 3.9 in.; bill .3 in.; wing 2.1 in.; tail 1.5 in.; tarsus .7 in.

2236 ♀, Enfield, Sydney, similar to 2230; bill and legs brown.

2234 ♂, 2235 ♀, Roseville, Sydney, both like 2230, but flanks and sides of breast darker, more olive citrine like back; wings 2.0 in.

2244 ♂, Lithgow, N.S.W., 2227 ♂, Mulgoa, N.S.W., both similar to 2230.

13297, Lithgow, N.S.W., immature, under surface yellowish; throat striations not distinct.

2229 ♂, Williams River, N.S.W., similar to 2230.

57 ♂, Blue Mts., N.S.W., like 2230, but striations on crown small and indistinct; back brownish olive; breast dusky; legs and base of bill yellow.

49, Bulli, N.S.W., smaller than 2230, duller on both upper and under surfaces; wing 1.9in.

50, Cooma, N.S.W., 52 ☿, Blue Mts., N.S.W., both similar to 2230.

48 ♂, Kangarilla, S.A., like 2230, but brighter, flanks being citrine; outer webs of tail yellowish citrine; under tail-coverts warm buff (identified with type by Dr. Witmer Stone.)

47 ♀, Meadows, S.A., like 2230; flanks dull citrine; wing 2.0 in.

529 ♂, 536 ☿, Meadows, S.A., 24.8.18 (pair lent by S. A. White), both like 48 and brighter than 2230, though striations lighter in ☿.

531 ♂, 534 ☿, Mt. Lofty, S.A., 16.4.15 (pair lent by S. A. White), like 2230 but ♂ darker on crown and primaries; ☿ with dull citrine flanks.

530 ♂, Middle River, Kangaroo Island, similar to 531.

1130 ♂, Kangaroo Id., S.A., like 2230, but brown of crown extending well down toward mantle; wing 2.0 in.; flanks dull citrine.

2238 ♂, Kangaroo Id., S.A., similar to 1130.

2237 ♂, Kangaroo Id., S.A., duller than 1130, back more olive than citrine; under surface dull.

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511 ♂, Frankston, V., 2257 ♂, Kilsyth, V., both similar to 2230.

511a ☿, Bayswater, V., like 511, but duller.

2225 ♂, Kilsyth, V., darker than 2230; back olive; flanks dark citrine; wing 2.1 in.

2239 ♂, Ringwood, V., young like 2230, but brown of crown extending well down on hind neck grading into olive colour of back; legs yellow.

6970, Grampians, V., immature, like 2230, but crown pallid (streaks distinct); throat striations indistinct.

* * *

2226 ♂, Healesville, V., like 2230, but flanks darker (citrine).

2248 ♂, Healesville, V., like 2226, but larger; wing 2.2 in.; bill .35 in., black and heavy.

309 ♂, Healesville, V., similar to 2248, wing long; bill large; bar on tail wider than normal, being .4 in.

2228 ♂, 2245 ♀, Scone, N.S.W., both lighter than 2230, crown pallid; flanks yellowish citrine.

53, 54, New England (2,000ft. elevation), crowns pallid like 2228; throat striations small; abdomen colonial buff; tail bar distinct on central feathers.

535 ♂, Imbil Forest, Qld., (lent by S. A. White), crown and back lighter than 2230, more like 2228; throat striations faint; flanks tinged amber yellow; abdomen sulphine yellow; under tail coverts light yellow; wing 1.9 in.

REMARKS.

This species shows the least variation of any *Acanthiza*, although it has an extensive range from South Australia to Queensland, inhabiting almost as large an area as its nearest cogener, *A. nana*. There are no marked pallid forms, as is the case with *nana*, because the species is confined to the well timbered regions, and is not found in, or has not yet been recorded from, drier interior localities.

There are no recognisable differences, other than individual variations, in the main run of skins taken in N.S. Wales and Victoria from those of South Australia (including Kangaroo Id.). Note the strictly individual variation in two pairs of birds from South Australia (each pair taken on the same day). One pair is dark on back and flanks like some Kangaroo Id. birds, the other pair is bright like some N.S. Wales specimens. Of two females from the same district, Meadows, S.A., one is dark and the other bright.

The brighter the plumage the more restricted in area is the brown crown, that is, the color does not run on to the back of the neck. The female is sometimes smaller in the wing than the male and may have lighter striations on the throat. The young shows the hind neck browner than in the adult, but this feature is noted in mature specimens from Kangaroo Id. and N.S. Wales. The under surface of the young is more yellowish than the adult, which is a feature of mature birds from Queensland and northern N.S. Wales.

Indications of local variations worthy of subspecific rank are found in the New England skins with pallid crown, 53, 54, and in two from Healesville, Vic., 2248 and 309 with large bills. The former may be *A. l. goulburni** and the latter *A. l. chandleri*†. The name of the northern sub-species, 535, is *A. l. alberti* (see *Bull. Brit. Orn. Club*, xl., p. 106).

If it is desirable to recognise subspecies of *A. lineata*, then it must be noted that there are slightly darker birds in N.S. Wales, 57, and in Kangaroo Id., 2237, as well as in Victoria, 2225; also there are lighter phases (pallid crowns) in Victoria, 6970, and in Queensland, 535, as well as in N.S. Wales, 2228.

This puts a new aspect on the question of subspecies, for it shows that much the same sort of variation may occur in localities in no way connected with one another, but separated by hundreds of miles of country, in which the type race is found. If, however, these variations are consistent and recognisable in their several districts, there is no valid reason why they should not carry a subspecific name.

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*See *Aus. Av. Rec.*, vol. i. p. 93.

†See *Nov. Zool.*, vol. xviii., p. 349.

A Review of the Australian Species of *Strepera* (Crow-Shrikes).

BY EDWIN ASHBY, M.B.O.U., C.F.A.O.U., &C., Blackwood, S.A.

AT the monthly meeting of the South Australian Ornithological Association held in February last the members of the genus *Strepera* were discussed and 49 skins representing all the forms were tabled.

The results of the discussion, as well as further comments by Dr. J. Burton Cleland, are recorded in the *S.A. Ornithologist*; vol. viii., part 2, pp. 41, 49 and 50.

We did not consider that Mathews was justified in introducing his genus *Neostrepera* for the reception of birds with a hooked upper-mandible, for amongst the skins of *versicolor*, *plumbea* and *intermedia* (*fusca*), were birds with notch and hooked upper mandible and also birds without this feature. Then again amongst the skins of species that Mathews considers typical *Strepera* were some birds showing notching, especially a skin of *S. melanoptera* collected by myself in Kangaroo Island, which has distinct evidence of a notch and hooking, and a skin from Encounter Bay, which has a slight notch and hook.

The writer has on various occasions, ranging over a number of years, sought in vain for *S. arguta*. Eight or nine years ago in a brief visit to Lake Sorrell he saw a pair of these birds, but obtained no skin, and the caretaker of the Government rest-house there stated that this bird was not common in that locality but was very numerous at the Great Lake. In the first week in November last a special trip was made to that lake and many miles of the elevated plateau, on which the lake is situated, were included in the examination, the altitude varying from 3000ft. to 4000ft. The Sooty Crow-Shrike, *S. fuliginosa*, was everywhere numerous both on the plateau proper and en route thereto. Two examples only of *S. arguta* were seen and one skin, a female, obtained. The note of this species is similar to that of the South Australian Black-winged Crow-Shrike, *S. melanoptera*, resembling the sound produced by an un-oiled squeaking wheelbarrow or cart-wheel, this sound only being made while the bird is in flight; but for this it would have been almost impossible to have located the bird.

This bird's unmusical call can be heard half a mile away, so that if any are in the neighbourhood their presence is quickly made known. The notes of the Sooty Crow-Shrike are wonderfully varied, having nothing in common with those of *S. arguta*. They suggest a loud conversation, forming quite the most interesting and pleasing bush calls to be heard in that district.

A gentleman at the rest-house at the Great Lake, who was greatly interested in the skin of *S. arguta* obtained, was evidently a good bushman and lover of bird life and had spent seven summers there;

from him I learned that this bird is never numerous in that district but that a few pairs put in an appearance from time to time. He knew its note well but had never previously handled a specimen, for, although the Sooty Crow-Shrike is a favourite food bird, and therefore often shot in that district, he had never known one of the other species to be shot. Others staying there confirmed his statement. The extreme wariness of *S. arguta* may of course partly account for this, nevertheless I am satisfied that it is never a common bird in that locality, and the fact of both species being present has led to the assumption, without justification, that *S. arguta* is common there, large numbers of the other species having been wrongfully credited to this one.

The existence of a definite white patch on the underside of the primaries in the wing in the Sooty Crow-Shrike, which is seen when the bird is flying, may have been a contributing factor in incorrect determination, as in one or two skins I have examined there is evidence of this white extending to the upper side of the wing feathers forming an incipient speculum.

I have avoided using the vernacular name " Hill Crow-Shrike " because I believe it is misleading, and I would recommend the Check List Committee to take this into consideration and select a more suitable one. A vernacular name founded on the scientific name "*arguta*," such as " loud " or " squeaking," would quite as truly apply to *S. melanoptera* or *S. intermedia*, and therefore a name denoting its love for open country would best describe it ; I suggest " Plains Crow-Shrike."

Mr. Herbert Thompson of Launceston, one of the best bird observers in Tasmania, tells me that *S. arguta* frequents some of the open or sparsely timbered country in the north east of Tasmania and in no sense can it be termed a mountain or forest bird, he has known it to nest quite close to Launceston. This statement was fully confirmed to me by another observer and certainly accords with my own experience. The question of altitude is not an important factor for I have showed earlier that this bird occurs in small numbers in the region of the Great Lake, which is open country, although at an altitude of three thousand feet, and Mr. Thompson states that it is much more numerous in open country nearer sea level.

I would also ask the Check List Committee to reconsider the use of the word " Currawong " as a vernacular name for the genus *Strepera*.

Throughout the larger part of the Australian Continent that name is completely unknown. I understand it is the native name of *S. graculina*, and is understood to suggest some of the notes of that bird, but as the notes of all the other species of *Strepera*, except perhaps *S. fuliginosa*, are quite dissimilar to those of *S. graculina*, the name " Currawong " should only apply to that particular species. The ordinary bushman's name for this group of birds is either " Black Magpie," or " Jay," but this latter is also applied to the White-winged Chough, and it would be rather unsatisfactory to call the grey birds *S. versicolor* and *S. plumbea* Black Magpies. I therefore strongly support the retention of the familiar name of "Crow-Shrike," for it is the only name in use that can appropriately be applied to all the members of this genus.

On the 9th September, 1886, the late James G. McDougall and the writer were collecting in the wild country near Cape Spencer, at a spot called Sandy Point, the south-western extremity of Yorke Peninsula, South Australia ; here we found a Crow-Shrike's nest with one egg (which is described later in this paper) and made a skin of the bird. In December of the same year the writer met Mr. McDougall by appointment at the Public Library, Adelaide, bringing the skin of the *Strepera* with him. Together we compared it with Gould's figures and identified it with Gould's figure and description of *S. arguta*, the Hill Crow-Shrike of Tasmania. After the lapse of 39 years I had forgotten this circumstance, it only having been revived in my memory quite recently on reading the diary kept by Mr. McDougall. Quite independently, in February last, in conjunction with others, I came to the same conclusion, that the nearest ally to my bird from Cape Spencer was *S. arguta* from Tasmania. The S.A. Ornithological Association has recorded in its notes (l.c.) "That the Port Lincoln bird named by Sharpe in 1877 as *S. intermedia* is identical with the skin obtained by Mr. Ashby at Cape Spencer in 1886" (Mathews confirms this) and adds : "This Association considers *S. intermedia*, Sharpe to be a good species, that it is not con-specific with *S. versicolor*, but is a small form nearest to *S. arguta*, the Tasmanian bird. *S. fusca* ("The Emu," vol. i., p. 27) is a synonym."

In his discussion of the Grey Crow-Shrike, *S. versicolor* (Birds of Austr., vol. x., pt. 7, pp. 423, 433) Mathews places *S. intermedia* with that species. For this I can see no reasonable ground, but, having done so, he was right in placing its near ally, *S. arguta*, next to it. Having gone so far, he should, to be in harmony, have placed *S. melanoptera*, also in association with these two species. As a matter of fact both *S. intermedia* and *S. arguta* are much more nearly allied to *S. melanoptera*, and show but little affinity with *S. versicolor*. Gould considered that *S. arguta* was not confined to Tasmania but was also found in South Australia, and it is almost certain that the bird now known as *S. intermedia* was the bird on which he based his identification.

I need hardly say that it is a great satisfaction to the writer, after maintaining for 39 years that the skin from Cape Spencer was either *S. arguta* or a distinct species from any of the recognised forms, to be able to supply an authentic skin of the Tasmanian bird for comparison, with the result that the workers in this State are fully satisfied that *S. intermedia* and *S. arguta* are both good species, with their nearest ally in *S. melanoptera*, and that to associate them with *S. versicolor* is quite a mistake.

S. melanoptera has no wing-speculum, though from the dry country in the mallee on both sides of the Victorian border and at Booleroo in the north of this State, we have skins that show on the undersides of the wing a pale patch; but in no case have we seen a skin with a definite white speculum. The following is a detailed comparison of *S. arguta* and *S. intermedia.*

White speculum on wing . . . *arguta* and *intermedia.*

Upper side greyish black, each feather black edged . . . *arguta.*

Upper side brownish black, none of the feathers black edged . . . *intermedia.*

Under side blackish grey . . . *arguta.*

Underside blackish brown . . . *intermedia.*

Tail white tipped, except two centre feathers . . . *arguta* and *intermedia,* but in *arguta* white almost absent in outer web of some feathers.

MEASUREMENTS.

Species	culmen	tail	tarsus	total length
Arguta ♀	2 5/8in.	9½ in.	2 7/8 in.	21 in.
Intermedia ♀	2 3/8 in.	8½ in.	2 3/8 in.	20½ in.
Intermedia ♂	2 4/8 in.	9 in.	2 5/8 in.	20 in.

(The *arguta* was from the Great Lake, Tasmania, and the two *intermedia* were both obtained at Warunda, near Port Lincoln, the type locality. All measurements are from dried specimens so that the "total length" given is only approximate.)

SHORT KEY TO AUSTRALIAN SPECIES OF STREPERA.

General colour grey . . . *versicolor* and *plumbea.*

General colour black . . *graculina, melanoptera, intermedia, arguta, fuliginosa.*

White wing speculum on both primaries and secondaries. . . *graculina.*

White wing speculum at base of primaries only . . . *intermedia, arguta, versicolor* and *plumbea.*

White wing speculum absent . . . *melanoptera, fuliginosa* (in both of these species a whitish patch is often present on underside of wings.)

White under tail coverts . . . *graculina, melanoptera, arguta, intermedia, versicolor* and *plumbea.*

Black under tail coverts . . . *fuliginosa.*

White base to tail feathers . . . *graculina.*

White tip to wing feathers (primaries and secondaries in varying degrees) . . . all except *graculina.*

White tip to tail feathers . . . all.

RANGE OF HABITATS.

S. graculina . . . Grampians in Victoria to Cape York in Queensland.

S. versicolor . . . Victoria to Queensland.

*S. versicolor plumbea** . . . South western portion of Western Australia, northwards to Murchison.

S. melanoptera . . . Western Victoria westward to Gulf St. Vincent, South Australia, including Kangaroo I. in south to Flinders Range in north.

S. intermedia . . . from Yorke Peninsula and Eyre's Peninsula westward, probably penetrating into Western Australia.

S. arguta . . . Tasmania only.

S. fuliginosa . . . Tasmania only.

DESCRIPTION OF NEST AND EGG OF S. INTERMEDIA.

As far as I am aware the nest and egg of this *Strepera* have never been described, and I therefore give the following description of the egg taken by McDougall and myself on the 9th October, 1886, at Sandy Point near Cape Spencer on Yorke Peninsula in South Australia.

Nest in a She-oak (*Casuarina quadrivalvis*), roughly made of She-oak twigs, neatly lined with grass and containing one egg. These data I have copied from McDougall's diary, written at the time. The egg I am giving to the South Australian Museum and the skin I gave to Mathews. It is, I believe now in the collection of Lord Rothschild at Tring.

Clutch one, oval in shape, texture of shell very fine, surface not glossy, ground colour (pale) vinaceous buff (Ridgway, pl. xl.), indistinctly blotched with pallid vinaceous-drab (l.c. pl. xlv.), and spotted with (pale) cinnamon (l.c. pl. xxix.). Measurements . . . 1 5/8 in. x 1 3/16 in.

The egg of *S. intermedia* is without the least vestige of gloss, whereas that of *S. versicolor* has a distinct gloss and darker spots.

Mr. J. Neil McGilp gives me the following particulars of a clutch of two, in his collection, which were collected near Kimba, in Eyre's Peninsula, by Mr. H. Collins on 9th September, 1922.

In ground colour, colour of both blotches and spots and also in the very fine texture of shell without any gloss, they correspond with the egg described above, but in his examples the blotching is thicker at the larger end. He adds that they are quite distinct from any other *Strepera* eggs, being nearest to those of *S. melanoptera*; as regards the blotching they are intermediate between those of that species and of *S. plumbea*, but the egg of *S. plumbea* is different in surface, having a slight polish. I note on examining a clutch of *S. plumbea* in my own collection that they are very distinct from the eggs of *S. versicolor* from eastern Australia.

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*The great distance separating *versicolor* from *plumbea* certainly suggests that this latter deserves more than sub-specific rank, but one is faced with the difficulty of paucity of examples, for while skins from the Warren District from Western Australia, compared with skins of *versicolor* from Victoria, appear specifically distinct, I have been shown a skin credited as from the former State that is very close to *versicolor*, therefore for the purposes of this papers I have followed Mathews in treating *plumbea* as a sub-species.

Bird-Life Around Wellington, N.Z.

BY R. H. D. STIDOLPH, R.A.O.U., Masterton, N.Z.

A SOJOURN of fourteen months at Wellington has enabled me to gather a few records of the occurrence of some of the Petrels around that city and to complete the list I have mentioned briefly those Petrels which had previously been noted there. A few notes on other birds are also given, besides a reference to species now extirpated, so that the following account shall include every species that has been recorded, to my knowledge, from the environments of the capital city.

For a short account of the district concerned I would refer the reader to *The Emu*, vol. xxi., p. 290. I have quoted from the writings of Sir Walter Buller and Major Heaphy for the occurrence of species now extinct in the district.

Little Penguin (*Eudyptula minor*). I have observed this species on the harbour. It is said to breed in close proximity to the city.

Victoria (Thick-billed) Penguin (*Eudyptes pachyrhynchus*). Buller recorded one in 1856. It has probably occurred since as a straggler.

Big-crested (Sclater's) Penguin (*Eudyptes sclateri*). There is a specimen so labelled in the Dominion Museum, obtained at Seatown in 1924.

White-faced Storm-Petrel (*Pelagodroma marina*). Many years ago Mr. L. Le Souef recorded in *The Emu* that a specimen of this bird was picked up in a Wellington Street. It had been blown ashore.

Black Petrel (*Procellaria parkinsoni*). Said to have been found breeding in Wainui-o-mata hills many years ago. It is not known if it does so now.

Grey (Brown) Petrel (*Procellaria cinerea*). According to Mr. J. Drummond one was washed up on the shore of Evans Bay in March, 1919.

Fluttering (Brown) Shearwater (*Puffinus gavia*). On 4th July, 1925, I found the remains of one on Lyall Bay beach. It is common about here.

Cape Petrel (Cape Pigeon) (*Daption capense*). Has quite recently been reported on the waters of Port Nicholson.

Dove Petrel (*Pachyptila desolata*). A specimen of this Prion (better known as *Prion banksi*), was found on Lyall Bay beach on 16th August, 1925. It is probable that other species of Dove Petrels are also cast ashore after gales.

Giant Petrel (*Macronectes giganteus*). This large bird approaches quite close to the wharves and has been noted in January, March, May, June, September, October, November and December. A frequent visitor.

Snares Island Albatross (*Diomedea bulleri*). I found the remains of this species on Lyall Bay beach on 3rd June, 1925.

Grey-headed Albatross (*Diomedea chrysostoma*). Many years ago a specimen was picked up at the mouth of the Hutt River and was given to the Dominion Museum.

White-capped Albatross (*Diomedea cauta*). In July, 1887, Buller received an Albatross (which he identified as *D. salvini*) from Wellington Heads. On 13th June, 1925, I found a specimen on Lyall Bay beach. It had been shot. It appeared to be referable to the Australian race *D. c. cauta.*

Wandering Albatross (*Diomedea exulans*). On rare occasions I have noted this species in the harbour. It even approaches quite close to the wharves and shipping.

Royal Albatross (*Diomedea epomophora*). On 4th July, 1925, I found the remains of a Royal Albatross on Lyall Bay beach. It is probable that this species enters the harbour on occasions, but it has not been identified inside the heads.

Pied Cormorant (*Phalacrocorax varius*). Very rare around Wellington.

Spotted Cormorant (*Phalacrocorax punctatus*). Buller records that in 1865 two young birds were killed on Port Nicholson.

Black Cormorant (*Phalacrocorax carbo*). This bird breeds in close proximity to the city. The nests are placed in Beech trees (*Nothofagus Solandri*), up to four nests in one tree. Breeding is in full swing in the winter months. On 28th June many of the nests contained young birds, from newly hatched youngsters to fully fledged birds. The young birds were very clamorous and called incessantly "keer-re," "keer-re," "keer-re." One nest measured 2ft. 3in. in diameter, the cup being about 1ft. across. It was built of beech twigs and the cup was lined with raupo stems. On 2nd August one nest, which on the former visit was occupied by fully fledged young, contained two eggs, while two other nests in the same tree, which previously had one and three eggs, still had the same complement. The adult birds uttered a croak on being disturbed, somewhat like "ger-ger-ger-gr-gr." Fish voided by the young birds appeared to be herrings.

White-throated Cormorant (*Microcarbo brevirostris*). Formerly reported as abundant on Porirua Harbour, but it has not been noted recently.

Australian Gannet (*Sula serrator*). Visitor.

White-fronted Tern (*Sterna striata*). Fairly common.

Caspian Tern (*Hydroprogne caspia*). Not uncommon in winter months.

Southern Black-backed Gull (*Larus dominicanus*). Especially in winter months this fine bird frequents the Wellington recreation grounds during wet weather to feast on worms driven to the surface of the ground. In the latter part of November, 1924, I visited a breeding place of this species in close proximity to the city. Probably 100 nests were noted, the bulk were placed on the beach not far above high-water mark but some were built on the tops of rocks. The nests were built principally of grass stems. Clutches varied from one to five, but three appeared to be the usual number, although a good number of nests contained two eggs. Three nests were noted with five eggs each, one with four and a few with one only. The chicks had just hatched in a few instances.

Silver (Red-billed) Gull (*Larus novæ-hollandiæ*). Common.

Arctic Skua (*Stercorarius parasiticus*). Buller recorded a specimen obtained on Wellington Harbour many years ago.

Dark Southern Skua (*Catharacta lonnbergi*). Has been noted in recent years on rare occasions.

Bar-tailed Godwit (*Limosa lapponica*). Migrant.

White-headed Stilt (*Himantopus leucocephalus*). Evidently formerly abundant, now a rare visitor only. Mr. A. S. Wilkinson saw one in the Kilbirnie recreation grounds in October, 1924.

Pied Oystercatcher (*Haematopus ostralegus*) and **Sooty (Black) Oystercatcher** (*H. unicolor*). The two Oystercatchers occur sparingly in pairs around the coast.

Eastern Golden Plover (*Pluvialis dominicus*). In 1883 one was shot at Worser Bay and later a pair was obtained at Island Bay. It has not since been noted.

Double-banded Dotterel (*Charadrius bicinctus*). This pretty Dotterel breeds in close proximity to the city, but it is not very numerous.

Shore Plover (*Thinornis novae-seelandiæ*). Reported by Dr. Dieffenbach as present on the strand at Port Nicholson in 1840. It is now an exceedingly rare species and has not been reported for many years.

Banded Land-Rail (*Hypotaenidia philippensis*). Formerly much in evidence around Wellington it has not been noted recently but may still survive.

Brown Woodhen (*Gallirallus australis*). Extinct in these parts, although, at least in one locality, quite common ten years ago.

Eastern Swamphen (*Porphyrio melanotus*). Scarce.

New Zealand Quail (*Coturnix novæ-zealandiæ*). Long since extinct.

New Zealand Pigeon (*Hemiphaga novæ-seelandiæ*). Scarce.

Paradise Duck (*Casarca variegata*). Nearly extirpated.

Grey Duck (*Anas superciliosa*). Not uncommon.

White-faced Heron (*Notophoyx novæ-hollandiæ*). Buller recorded a pair from Porirua Harbour many years ago.

Reef Heron (*Demigretta sacra*). Not uncommon.

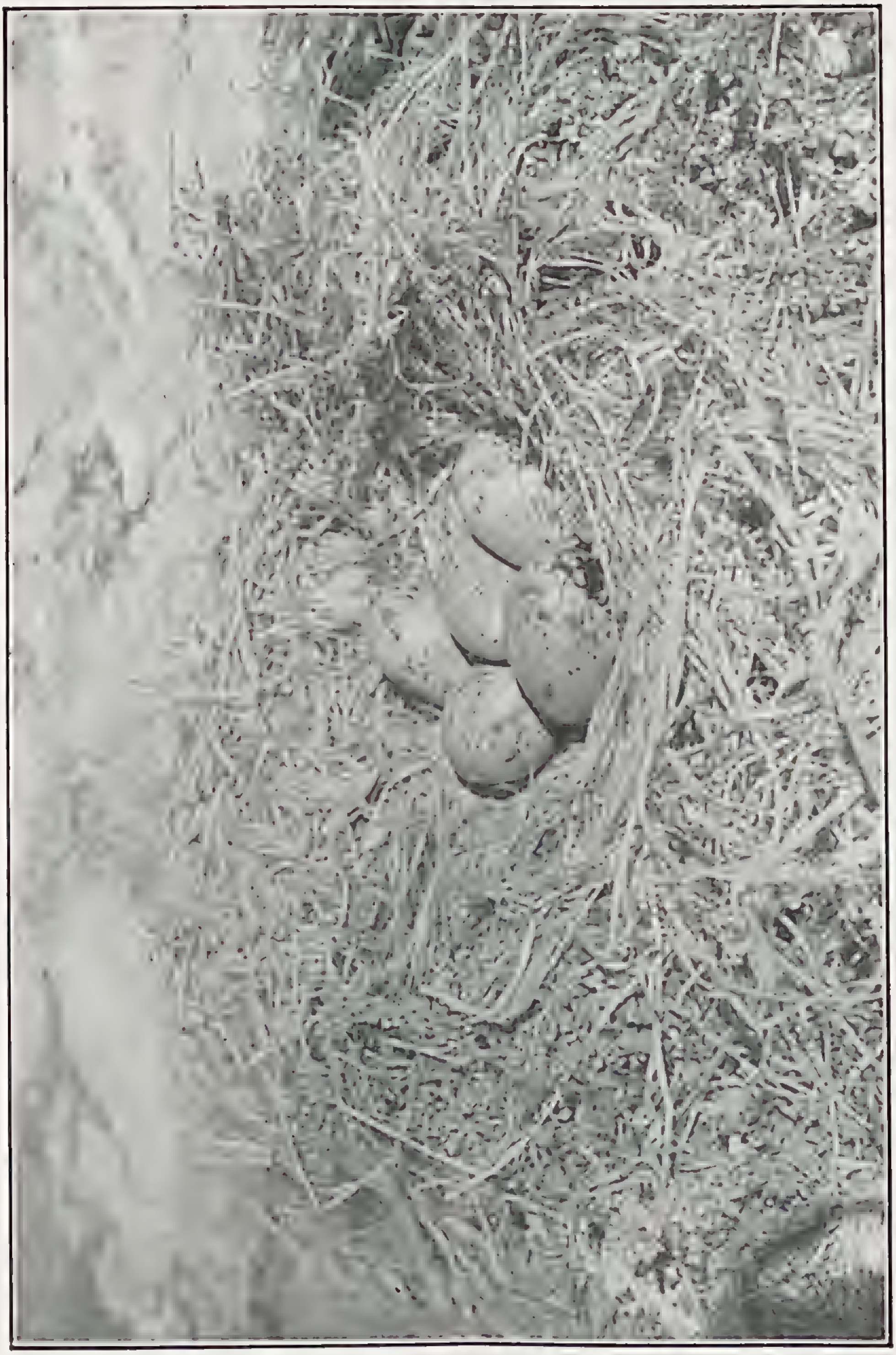
White Egret (*Egretta alba*). An exceedingly rare visitor.

Brown Bittern (*Botaurus poiciloptilus*). Rare.

Quail Hawk (*Nesierax novæ-hollandiæ*). A visitor. On 24th August, 1924, I saw one of these birds strike down a Starling (*Sturnus vulgaris*) from amongst a flock of these birds at Korokoro.

Swamp Harrier (*Circus approximans*). Not uncommon.

Spotted (Morepork) Owl (*Ninox novæ-seelandiæ*). This owl has completely adapted itself to introduced conditions, and frequents city parks in the heart of Wellington.



NEST OF SOUTHERN BLACK-BACKED GULL (*Larus dominicanus*)

Photo. by R. H. D. Stidolph, R.A.O.U.

NATIONAL MUSEUM OF [illegible]

Red-fronted Parrakeet (*Cyanorhamphus novæ-seelandiæ*) and **Yellow-fronted Parrakeet** (*C. auriceps*). Both parrakeets were formerly excessively abundant in the woods surrounding Wellington, but now, probably both species, are rare visitors only.

Kaka (*Nestor meridionalis*). The same remarks apply to this parrot.

Shining Bronze-Cuckoo (*Lamprococcyx lucidus*). Migrant.

Long-tailed Cuckoo (*Urodynamis taitensis*). Migrant.

Sacred Kingfisher (*Halcyon sanctus*). Not uncommon. I have observed this bird, at Porirua Harbour, feeding on crabs.

Rifleman (*Acanthisitta chloris*). Fairly numerous.

Bush Wren (*Xenicus longipes*). In my former paper (*Emu*, xxi., p. 292), I recorded this species somewhat tersely. In 1918 I saw a pair of these birds in the Days Bay bush. It has not been noted since however. Doubt has been expressed as to the correctness of my identification, as this bird is usually confined to sub-alpine beech forests and is extremely rare. It will be remembered that the type of *Xenicus stokesii*, Gray, was obtained in the adjoining Rimutaka Ranges, but this bird is now considered a sub-species by Mathews and Iredale (*Ibis*, 1913). It certainly is *not* extinct, however, as these authors doubtfully suggested at that time.

North Island Tomtit (*Myiomoira toitoi*). Not uncommon.

North Island Robin (*Miro longipes*). Extinct in this district.

Grey Warbler (*Gerygone igata*). Abundant.

Grey (Pied) Fantail (*Rhipidura flabellifera*). Plentiful.

Black Fantail (*Rhipidura fuliginosa*). Very rare.

North Island Thrush (*Turnagra tanagra*). Last heard of in 1884, when a pair still existed in the Horokiwi Valley, near Porirua Harbour.

Whitehead (*Certhiparus albicilla*). Plentiful.

Grey-backed Silver-eye (White-eye) (*Zosterops lateralis*). Abundant.

New Zealand Bellbird (*Anthornis melanura*). This Honeyeater, after being absent for many years, is reappearing around Wellington, but as yet is not found in the immediate vicinity.

Stitchbird (*Notiomystis cincta*). Extinct in these parts.

Tui (*Prosthemadera novæ-seelandiæ*). Not uncommon; sometimes frequents suburban gardens in winter months.

New Zealand Pipit (*Anthus novæ-seelandiæ*). Not uncommon.

Huia (*Heteralocha acutirostris*). Extinct in this district.

Saddleback (*Creadion carunculatus*). Extinct in this district.

Blue-wattled Crow (*Callæas wilsoni*). Has not been seen for many years and probably no longer exists in this district.

Of the introduced species, of which I gave a list formerly (*Emu*, xxi., p. 294) the Indian Myna (*Acridotheres tristis*) has now completely disappeared from the neighbourhood of Wellington, the nearest spot at which it occurs at the present time being about thirty miles distant. Previously I had no record of the Pheasant (*Phasianus colchicus*) in the district but lately have noted it once or twice. This bird is continually being liberated by Acclimatisation Societies.

Bird Protection.

SOME POINTS FOR CONSIDERATION.

BY A. H. E. MATTINGLEY, C.M.Z.S., Melbourne.

THE incident of protection has been a vexed question with members of our Union for some years past. The subject has been approached from different viewpoints by those interested in the question. Often there has been a clash of opinions and the rebound has not been conducive to the welfare of the Union.

In this short article I purpose postulating certain cases and hope that those who may be considered dogmatic in their statements may carefully consider all points submitted for analysis. Certain of these points are necessarily immutable others open to variation from time to time. Sure it is that the form of protection which may be acceptable to the community at the present period will not be acceptable later on when conditions in Australasia have considerably altered as the country is opened up and population becomes denser and the habitat of the birds restricted.

One of the first principles for which the Royal Australasian Ornithologists' Union was founded was the study and protection of the avi-forms of the Commonwealth. That the study of the life-histories of our birds is an essential preceding their protection is conceded by most persons. Just how this study should be conducted is one of the points in dispute and a problem to be solved.

None of our members wish to see the balance of nature destroyed or even disturbed, but in many instances unfortunately this cannot be obviated. What is this balance of nature one may ask, and, in reply, it might be stated that were every fly-catcher to produce four young each year and each fly-catcher were to live 10 years in time every portion of the Commonwealth would be packed with fly-catchers. But the surplus fly-catchers are killed and eaten by various other birds, animals, or reptiles, each striving to maintain itself, so that eventually the number of fly-catchers remains about the same.

Certain moths deposit hundreds of eggs in a season, and, were each egg to hatch and each insect to mature and go on reproducing young at the same rate, the whole of Australia would in a few years, I venture to say, be carpeted with caterpillars. But under natural conditions the moths and the eggs of moths are destroyed by birds, by spiders, by parasitic insects, by disease, and by the action of the weather ; so that in the end only one pair of moths succeeds another. The gum-tree produces many seed pods, and were each seed-pod to develop into a tree and each tree go on producing seed pods, Australia eventually would be crowded out. But many animals feed on seed pods and on the seedlings ; other trees crowd out the young gum trees, insects feed on the leaves and on the bark, wood-borers cut out the interiors destroying many trees ; so on the average each eucalypt barely succeeds in producing another to take its place.

We thus see that while birds, insects, animals, reptiles and plants are constantly striving to multiply their number, the creatures that feed on them operate continually to check their undue increase. This action and re-action of natural forces constitutes what is known as the balance of nature.

In releasing for settlement our vast empty spaces of virgin country, at present the homes of millions of birds, the tilling of the land is inevitable. This naturally destroys the habitat of many species and also prepares a habitat for a few other varieties. As we destroy these habitats we also destroy their natural food supply and in doing so we unbalance nature, temporarily at least, until the inexorable laws of dame nature destroy the surplus of life due to lack of food supply, as well as the loss of the requisite nesting sites in which to rear their young. Some persons maintain that nothing more cruel can be perpetrated because the result means slow torture of the birds by starvation, as well as disaster to the continuance of the species if the birds are thus compelled to nest in insecure positions such as on the ground.

I have in memory the fact that when traversing our Mallee country I saw a beautiful Mallee Parrot leave its nesting site in the hollow spout of a eucalypt tree. Investigation revealed that it had been brooding on a clutch of its eggs. Some time later I visited the site again and, to my surprise, out flew a Galah Cockatoo, a much larger and stronger bird than the Mallee Parrott. This Galah had evicted the Mallee Parrot and had also laid a clutch of eggs and was brooding on its own and the Mallee Parrot's eggs. At a later date I visited the nesting site again, and, to my infinite astonishment, a large Owl flew out. This last bird had ejected the Galah and had laid a clutch of eggs and was brooding on the three clutches.

In several places, Mallee Parrots, in default of nesting hollows, were laying their eggs on the ground. These were preyed upon and eaten by dingoes, foxes, native cats and lizards. The dearth of nesting hollows was due firstly to the introduced alien Starling, which is gregarious, and, in the battle for existence in Europe, has learned more tricks and become more specialised to enable it to survive than our native birds, and had ousted our more primitive indigenous birds ; secondly, to the ever increasing destruction of their habitat by settlers, causing the birds to enter other areas fully populated by birds and thus causing congestion ; thirdly, the destruction of the nesting hollows by the robbers of young birds, who chop off the hollow nesting spouts of the trees to enable them in their greed to more easily abstract the fledglings for pets for bird fanciers. Thus each year there are fewer and fewer nesting hollows left since it takes years for these hollows to develop naturally.

In instances of the description above mentioned it is a matter of argument as to what harm can be accomplished by allowing a few specialists permission to collect only for scientific purposes. It is said, that as these birds must ultimately be destroyed by nature's forces, it were better some of them should be collected and their internal and external parasitology studied for diseases in relationship to those of mankind, the food found in their crops or in their stomachs examined so as to ascertain what part in the economy of nature they are undertaking, their anatomy and plumage identified for the purpose of classification, as also their eggs. It is maintained by some that this collecting will be a distinct advantage to the ill-fated birds and will prevent untold long drawn-out suffering occuring to them, through ending their lives earlier.

It is admitted that some at least of our native birds will still survive in cases where their habitat undergoes a metamorphosis, but in doing so their present numbers will greatly diminish. It is suggested by some that if collectors diminish the bird population of a few of its members it will aid the remainder.

In every instance where our Australian birds are concerned it is obligatory on each of us to hand down to posterity that portion in the balance of nature which is its birthright, by saving the lives of all those birds that our country, in its ever-altering condition, can support with suitable and acceptable environment and food. It is well known that some species are doomed but by forming numerous sanctuaries of large area most can be saved. Sanctuaries are undoubtedly a pre-requisite for their perpetuation.

Those persons who shoot birds over traps, such as members of gun-clubs, assert that they are thereby helping our native birds to live. The gun-club members shoot from traps the introduced starling and the acclimatized sparrow. Both these birds are fast multiplying and over-running the Continent to the detriment of our native avi-forms. It appears the keeping in check, as far as is possible of these birds will be a distinct advantage to our Australian birds.

There can be no excuse for members of gun clubs shooting our native birds, trapped for the purpose, and the spectacle of some of these gunmen shooting such birds as Galahs, to put the best construction on it, is not edifying. It is said that these birds are unprotected at the wish of the farmers, by whom they are considered pests, and that by shooting them the gun clubs prevent other species of native birds from being poisoned when they eat the poisoned grain and other baits laid for the purpose of destroying Galahs, which birds are accused of eating wheat and other grain. If they destroy the Galahs the farmer will not lay poisoned baits.

The gun-club members argue that the shooters of tame pigeons are more humane than ordinary sportsmen because they are skilled shots, use the best ammunition and high grade deadly guns, whereas many of the great army of game shooters are bad shots and only wound their game, which gets away mangled and suffers great agony because of the poor quality of their guns and ammunition.

It has been said that it is better to have lived than never to have lived at all, and, in the State of Victoria alone, 30,000 pigeons are bred for the use of shooters over traps. It is maintained that these birds would never have had the joy of life were it not for the desire of the gun club members to shoot them and afterwards eat them.

One naturally asks should game, either biped or quadruped, be shot at all by sportsmen? If game shooting be allowed by our laws, and admitted by the community as a correct attitude toward the lower animals, then we must, it is maintained by some, be consistent and we must in equity permit the shooting of pigeons since they are domestic food animals. It is asserted by gun clubs that their method of killing the birds and animals is no more painful than the slaughter of oxen and sheep.

Undue preponderance of game birds and other game due to propitious seasonal causes, it is averred, should be used to augment our food supply. Some people stigmatize as a pest this preponderance, whereas others maintain that the great Architect of the universe created this preponderance for the especial benefits of other animals, including the genus *Homo,* so that they could be preyed upon and utilized, and thus nature will be kept balanced, both by way of providing a never-failing food supply and the reduction to normal level of the overplus.

It is contended by some persons that the game hunter is essential to the economy of nature and that the shooting of surplus game is an economical method of keeping nature properly balanced and much more preferable than resorting to the poisoning of surplus birds and animals, which method of reduction cannot be properly controlled and confined to the destruction of the creatures which are intended to be destroyed, besides being an economic waste.

Domestic cats gone wild are a great menace to our bird life hence sportsmen and members of gun clubs state that they shoot these obnoxious creatures on every occasion, since they destroy large numbers of game birds such as quail, wild ducks and young of other varieties, and, in shooting these cats, they affirm that they help to protect the birds on the protected list from destruction by their agency.

If game shooting be at any time considered unnecessary, and laws are enacted prohibiting its practice, then it will be necessary to prohibit the manufacture and importation of lethal weapons.

It is also contended by members of our Union that damage is done by nature photographers, who, by prying closely for too long a period at close quarters to a bird's nest, cause it to desert either its eggs, or young ones, which, if left too long exposed, ultimately die from the effects or become sterilized. Even bird observers are accused of the same evil in a minor degree.

Some naturalists contend that any form of the collecting of flora and fauna is unwarranted, and that there is no degree of values in the destruction caused to any species of plant or animal, since both cause a disturbance in the balance of nature theoretically; but that, if nature is not unduly pressed in any one direction, it will regain its balance readily.

One great question which we must ask ourselves is "has man been placed on this planet to use fairly nature's gifts?" If so, then what constitutes fairness? Perhaps some of our members might express their ideas on this profound question and the true meaning of "live and let live."

I trust that this article will produce dispassionate controversy and thereby create a better understanding of the problem before us.

Stray Feathers.

Notes from Eaglehawk Neck, Tasmania.—During March, 1925, we had a visit from a flock of eight Double-banded Dotterels (*Charadrius bicinctus*) which ranged the beach for ten days, then disappeared.

Another visitor was a large Penguin, standing almost two feet high. I measured his height against myself. He allowed me to come close up to him, but was very uneasy whenever I tried to view him from the rear, turning round the whole time and facing me with his beautiful white front. My attention was first attracted to him from the verandah of our home on the hillside above the bay. I noticed this unusual figure on the beach below and watched it standing upright, preening its feathers, stroking its breast with its bill. Then it settled on the sand in a hunched position, so I went down to view the stranger. It stood up at my approach and made a protesting, hissing kind of noise. Its bill was red and the feet dark. A conspicuous semicircle of white ran part way round the neck on the upper surface just below the nape. The wings were only flappers and it had no crests. The exact measurement of its height was 22 inches. It stayed asleep on the beach until night fell and when the next morning came I was relieved to see that it had gone away. The " creature " who shoots at everything moving has scared most of the birds away from these sands.

After a big storm in July a beautiful specimen of the Crested Penguin was washed ashore dead in the Kelp.

On Sept. 1, 1925, many male Flame-breasted Robins (*Petroica phœnicea*) arrived and congregated on this beach which extends for three miles from Clyde Island to Fossil Island off the Blowhole Point. No female birds had arrived up to Sept. 6.

The migratory birds left us very suddenly last season in the early days of March. The past winter was extraordinarily severe for this part of Tasmania, which, as a rule, possesses a mild climate. Up to Sept. 6 I had only seen the Robins mentioned and the Goldfinches (*Carduelis carduelis*). At that date in 1924 all the migrants had arrived.—(MISS) J. A. FLETCHER, R.A.O.U., " Lyeltya," Eaglehawk Neck, Tas.

* * *

An Early Note on Black Swans.—James Backhouse in his " Narrative " records that when at Moulting Bay (on the east coast of Tasmania) in mid-September, 1834, " we counted fifty-six Black Swans, in pairs : their nests had been carried away by floods. This is often the case, and at other times they are extensively robbed of their eggs. One family, at whose house we lodged, had sometimes taken as many as five hundred eggs at a time. Formerly a tribe of Aborigines resorted regularly to this neighbourhood, at this season of the year, to collect swans' eggs."—W. STUART DOVE, W. Devonport, Tas.

How Tasmania Lost the Emu.—James Fenton, an early settler in the island, in his " Bush Life in Tasmania," commenting on the fact that Surveyor Hellyer sighted some Emus not far from Valentine's Peak, says " it is a singular fact that those Emus have all disappeared from some unknown cause." James Backhouse, who visited all the Australian colonies in the thirties of last century, published a very interesting narrative of his tour, with many remarks upon the fauna and flora. To anyone perusing this narrative, the complete extinction of the Tasmanian Emu is no longer a mystery, as will be seen by what follows.

Backhouse paid a visit to Hugh Germain, in the south of the island, and says "Germain came to Van Diemen's Land with Colonel Collins at the first settlement of the colony; he was a private in the marines, and was for many years employed in hunting Kangaroos and Emus for provisions, which the officer, whose servant he was, received from him, and sold to the Government at 1s. 6d. per pound. Germain, assisted by two prisoners, returned 1000 pounds per month, on an average. Though Emus are now rarely seen in the island (1834) at that time they were frequently met with about New Norfolk, Salt Pan Plains, Coal River and Kangaroo Point."

It will thus be seen that the extermination of the Tasmanian Emu lies at the door of the Government of that day, and that the flesh was used to support the troops, and (perhaps) the prisoners. Some of the skins would be turned into mats, the remainder, with the bones, would probably be burnt, and so hardly a vestige of this interesting bird has remained to us.—H. STUART DOVE, W. Devonport, Tas.

* * *

When did the Tasmanian Emu Become Extinct?—Mr. Stuart Dove in his search through old books for records of the Tasmanian Emu* has been unsuccessful in establishing conclusive evidence of the existence of this bird after 1845. Mr. G. M. Mathews has given no records of these birds being seen in their native state after that year, although he gives several notes on various birds in captivity supposed to be native. Doubt must be expressed as to whether many of these birds were stock from the original Tasmanian form, since even at that early period the Australian Emu had been introduced into Tasmania in a state of captivity.

* * *

An interesting note on the existence of the mainland birds in Tasmania as early as 1845 appears in William Westgarth's *Australia Felix*, published in 1848. Westgarth states : " A pair of Emus from Port Phillip, which had been domesticated in the park at Circular Head, Van Diemen's Land, reared six young ones during the spring of 1845. The female made her nest early in October, and laid eight eggs. The period of incubation was exactly six weeks." The pair of Emus, recorded by Mr. Dove, kept by the Van Dieman's Land Co. at Circular Head, was probably the identical pair referred to by Westgarth as cited above.—D. DICKISON, R.A.O.U., Melbourne.

**The Emu*, XXIII., p. 221, and XXIV., p. 300.

A Robin Tragedy.—On Sept., 29, 1925, Mr. Cannam and I visited Beaconsfield to try and locate some Helmeted Honeyeaters. Although we were disappointed in this we had a most enjoyable day among our feathered friends. About 11 a.m. my attention was attracted to a Yellow Robin (*Eopsaltria australis*) which appeared to be sitting on her nest in a peculiar position. We approached her stealthily and thought we had achieved something when we caught the bird, but to our surprise we found that she was dead. Death was due to suffocation.

The nest was situated in a three-pronged fork about 4ft. 6ins. high. The central branch of the fork protruded above the nest in a perpendicular manner and was forked near the rim of the nest. Unfortunately the poor bird's head had been caught in this fork with the abovementioned result. On examination the Robin proved to be a female but she was just too far advanced to allow a skin to be made. The eggs were about one-third incubated. The nest itself was beautifully built as usual, the dimensions being: internal depth, 1.8 ins., external depth3. 75 ins., internal diameter 2.5 ins., external diameter 3.5 ins.—N. J. FAVALORO, R.A.O.U., Melbourne.

* * *

The Skylark in Tasmania.—It may be interesting to record that the British Skylark (*Alanda arvensis*) has this spring (1925) made its appearance on Tasmania's north-west coast, and seems likely to become established. For many years this bird has been nesting in the Launceston district, 62 miles south-east from Devonport, and the grassy flats about the show-ground and in the vicinity of the North Esk River have been enlivened by its song. It is not, however, a pushing colonist, unlike the Goldfinch (*Carduelis carduelis*) which made its way into most parts of the island soon after its introduction.

About half a dozen years ago I noticed the Lark at Westbury, which is about half-way between here and Launceston, since when it has, no doubt, been gradually making its way along towards the coast. As this species is, unlike the Starling and Sparrow, a "desirable immigrant," we hope that it will soon become firmly established, and cheer with its song the dwellers beside the Mersey.—H. STUART DOVE, W. Devonport, Tas.

* * *

Black-backed Magpie (*Gymnorhina tibicen*), **with Two Mates.**—Last year a male and two female Magpies came and built two nests—one in a pepper tree just outside the garden and another in a pepper tree in the garden, about 30 yards away. One of the hen birds had rather dull plumage so I thought she might have been a young bird, but as there is one here again this year with dull plumage it could not have been so. This year the Magpie has returned with his two wives and they built two nests in another pepper tree in the garden. They chose one under which our dog is chained at night, but whether they chose it for protection, or by accident, would be interesting to know. My notes are incomplete as I was away both last year and this year during part of the nesting season. Last December there were quantities of red beetles about after the rain and the Magpies soon discovered them and came and ate them wholesale. They even ventured on to the bowling green in Warwick where the beetles were in dozens. So far this year I've not seen more than two young Magpies in one family. Perhaps the dry season accounts for the fact. Detailed notes follow :—

1924, July 13th. Magpies building in pepper tree outside garden.

August 12th. Magpies building in pepper tree in garden. There appear to be three birds.

Aug. 24th. The birds appear to have finished 2nd nest in first tree (they started two nests, but abandoned one).

Sept. 8th. Still three birds here. A hen on each nest now. The one in the second tree began to sit about 1st Sept. The male bird feeds both the hens and also takes a turn sitting on No. 2 nest, so I suppose he sits on No. 1 as well, to give his other mate a rest.

Oct. 11th. Large brown hawk here frightening the magpies ; it is very persistent. Only one young bird in each nest now so it must have eaten one.

After the young birds left the nests an old bird seemed to disappear, but occasionally there would be five here. Whether it was here all the time or only came back some times I cannot be sure.

1925, July 17th. Magpies have started to build nest in pepper tree in garden. Old bird punishing the young one which has been with them since last year. But it didn't go away far—merely took itself off to the front garden, looking very sad !

July 19th. Another nest about same stage as first one in same tree, just a little lower down. Three birds here again this year. Evidently the same three, as one has dullish plumage.

The young one is chased furiously if it ventures near the others.

July 28th. Birds lining nests.

Sept. 10th. Both hens sitting since about 1st. They come off to feed about twice a day. The male bird feeds both his mates on the nest. There were three eggs in each nest ; all except one were blue with brown spots, the sixth was blue with reddish speckles—darker than the others.

Nov. There were two young birds in one nest and one in the other. They left the nest about 2nd Nov. They appear to have separated, the two being fed by two old birds and the other by one old bird, but it is difficult to be sure unless one watches closely for a long while, so the old bird may help his second mate to feed the other young one. While his mates were sitting the old bird was always on the alert and would usually fly up on to the telephone post near the tree containing the nests if you ventured near. When the young ones hatched he sometimes tried to chase the men folk away, but only on one occasion bothered me. It is usually when they are disturbed that they become savage I think.

Last year there were quite a number of Magpie's nests in the mistletoe about here. Very likely they thought their nests were more protected there than in the usual place.—(MISS) D. M. TILLEY, Rose Hill, Queensland.

* * *

Birds Check Grasshoppers.—The following informative article, written by the Wybong (N.S.W). correspondent of Sydney *Daily Telegraph*, appeared in that journal on October 19, 1925 :—

What at first looked like being one of the worst grasshopper plagues ever experienced in the Upper Hunter commenced to hatch about a month ago. From reports, it was found infestation had occurred at Singleton, Jerry's Plains, Wybong, Muswellbrook, Aberdeen, Scone, Dartbrook, Owen's Gap, Sparkes' Creek, and Warrah. These districts embrace from Singleton on the Lower Hunter to the Liverpool Plains. If some control had not checked the pest it would have assumed unheard-of proportions by the early summer. Spraying is being carried out in many centres. At Warrah a meeting of land-holders was held, and each was asked to subscribe £2. A total of £78 was subscribed at once, and it was considered that at the present stage the pest could be easily controlled. The committee had all necessary appliances at hand, and spraying was commenced immediately. Under these conditions the Warrah district should soon be clean. At Wybong landholders were becoming apprehensive that the pest would assume large proportions, so many were hatching, but last week great flocks of wood swallows came to the rescue. The result is that in a few days the whole district, has been cleared. This district has been besieged with birds. Flights of 3000 and 4000 wood swallows in the air at once has been a common sight for several days. Old residents say they have seldom seen so many birds before. Starlings and ibis have also helped. Farmers speak highly of all these birds and would as soon shoot a cow as one of these feathered friends. Thousands of 'hoppers lay in black masses, and in two days these birds had the patches annihilated. Never before were the birds more welcome, as droughty conditions prevailed and grass was very scarce. While spraying is satisfactory, farmers realise that the birds can control the pest far better, as they never miss one patch, while with spraying one district may carry it out, and another not, whereas the birds, if in sufficient numbers, will visit all districts. The opinion is held that birds are the only things that will ultimately control the pest.

* * *

Nesting Habits of the Hill Crow-Shrike (*Strepera arguta*). A pair of Black Magpies (*Strepera arguta*) comes each season to nest and rear their young on the slopes of the hillside. The female appears to do most of the nest building, but in return is constantly fed by her partner. When she is sitting she comes off twice a day as a rule, about eleven and then again about five in the evening.

She gives a call when coming and he answers and flies to meet her. Then she follows him about making the same sound for food as a young one does. She gives him no peace, for as fast as one beakful disappears down her throat she again raises her petulant cries. When swallowing she also makes gurgling notes as the fledglings do. Indeed, last year I felt quite sorry for her partner, and I am sure he must have rejoiced when she returned to her brooding cares. He generally " saw her home." As soon as they were big enough to leave the nest the young Mags were brought to the adjacent timber for a few weeks, after which the family moved away. Early in September the male bird restarted to feed his partner so, from previous experience, I concluded she was building.—(MISS) J. A. FLETCHER, R.A.O.U., " Lyeltya," Eaglehawk Neck, Tasmania.

From Magazines, Etc.

Aspects of Bird Study.—" This paper deals with the aesthetic appeal of birds, but the author is not blind to the fact that, to many, the scientific aspect of ornithology appeals as much as, or more than, the aesthetic . . . The contest between collectors and protectors splits every natural history society. There are fanatics on both sides. A purely scientific interest in birds may lead to the selfish acquisition of a series of skins and clutches, and to the extinction of rare and interesting species. On the other hand, indiscriminate protection upsets the balance of Nature, and defeats its own ends by increasing the enemies of the very birds it desires to protect.

" For my own part, I do not collect, because to me it is horrible to destroy or remove from its ideal surroundings a beautiful thing, be it a bird, or its nest, or eggs. A pair of Goldcrests flitting to and fro to their young in the fragile cradle rocking quietly beneath a spray of yew, are a delight and a joy. Take them away from their natural environment, and however cunning the taxidermist's skill, they are nothing. You cannot re-create the scene in a museum or a collection, any more than you can breathe life into their stuffed skins. A leading ornithologist wrote to me the other day : ' The older I get the more rabid a protector I become.' The gifted author of *Ianto the Fisherman*, in later life, came to the same conclusion : ' The great difference is that whereas once I thought more of the hidden nest and of a probable addition to my cabinet of eggs than of the sweet woodland music, I have gradually lost my passion for collecting, and now desire only that I might note each habit of the free, joyous creatures among their shady retreats in the garden copse.' It is better to watch and listen, and thus to store up memories in the mind ; such collections destroy no beauty, and they are more lasting than faded egg-shells and moth-eaten skins."—E. W. HENDY in the *Contemporary Review* (England), April, 1925.

Correspondence.

THE CROW.

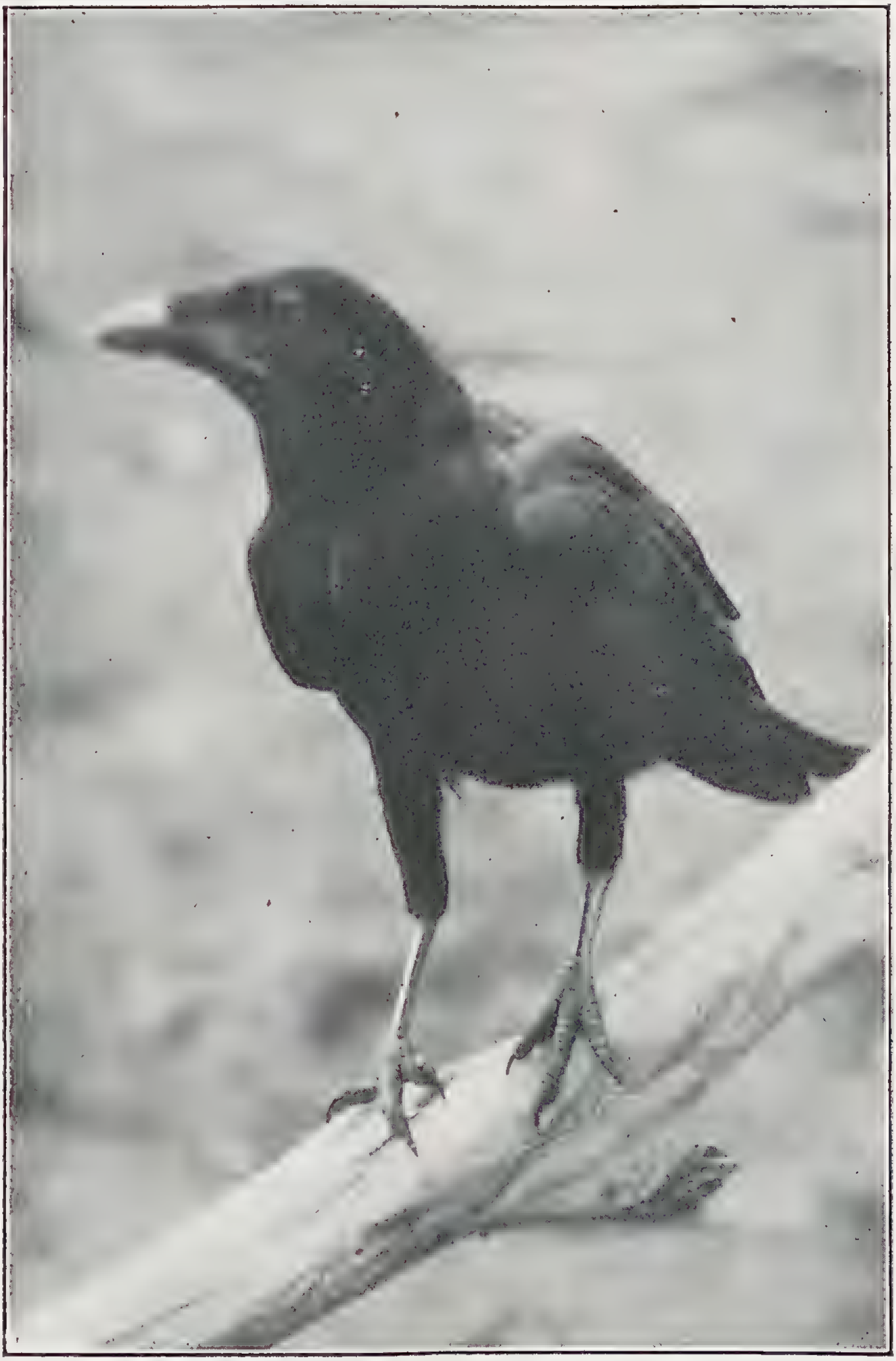
The Editor of *The Emu*,

Sir,—I was pleased to see that Mr. A. H. E. Mattingley has taken up a " brief " for the Crow. I have had a life long experience of the Crow and must plead guilty to having killed hundreds of them, but I have found that in this bird we have a very valuable agent for dealing with the blow fly. It is only in comparatively recent years that the blow fly has been the cause of almost untold damage, and sheep-breeders are beginning to see that the Crow is a valuable aid to them in dealing with the pest. During the last three years I have noted a great increase of crows in South Australia and imagine that our friends from the other States will call us " Crow breeders " not " Crow eaters " in the future.

Crows have always been extremely numerous in the interior, they are wary birds and do not venture into dangerous quarters in great numbers ; for the past few years however the Crow has increased very largely as far south as the Burra, and finding that he is now being treated as a welcome visitor he is gradually pushing his way southwards. As Mr. Mattingley says, it is wonderful how a flock of Crows clean up a dead carcase. They go even further, they scratch for and devour the larvae of any blow fly that have gone down into the ground under or near the carcase.

I notice that Mr. Mattingley says " it falls a victim to poisoned rabbits through feeding upon their stricken bodies." I do not know if Mr. Mattingley has ever attempted to poison a Crow, if he has done so without trouble he must have a plan that at one time I would have given him a few pounds for. From my experience, I say that few Crows in proportion to their numbers are poisoned from poisoned carcases. I have seen Crows by the dozen feasting upon rabbits that I had poisoned and was at the time conveying to a great heap for burning, yet I have seen very few dead Crows. One has to go to considerable trouble to poison Crows. I have seen them eat bait laid for wild dogs only to go to the nearest post when they began to feel sick, and throw up the bait. I think that the gun was the most effective in dealing with the Crow, unless of course, special attention was paid to the poisoning. However, nowadays, few in South Australia want to kill Crows, we are all beginning to realize that it is " all too rare a bird " and want to see it increase.

I will admit that it does do harm, in many ways—I slaughtered it for that reason once—but since the increase of the blow fly we are finding out that the Crow is worth his keep. A week or so ago a leading article in the Adelaide Press advocated the protection of the Crow. Such an article five years ago would have brought forth letters galore, claiming that the Crow was the " very black devil "



AUSTRALIAN CROW (*Corvus cecilae*).

Photo. by O. Webb, R.A.O.U.

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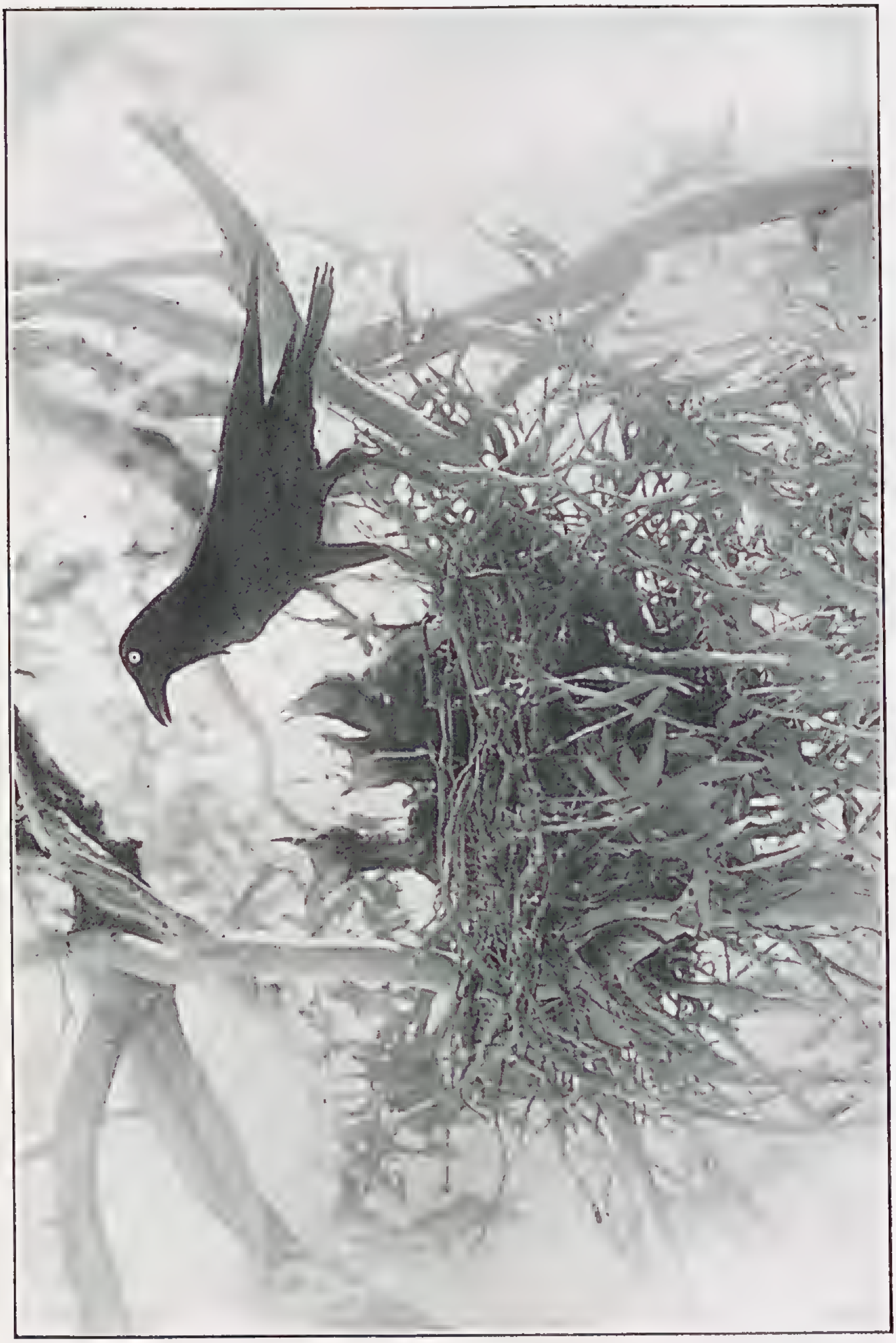

AUSTRALIAN RAVEN (*Corvus coronoides*) WITH NEST AND YOUNG.

Photo. by D. W. Gaukrodger, R.A.O.U.

himself, yet I am pleased to say that not a letter has been published condemning the Crow.

There is no need to put Mr. Crow on the protected list, he has put himself there. I fear that few of the birds on the protected lists are as worthy of preservation as the Crow.

Yours, etc.,
King's Park. J. NEIL MCGILP,
Sept. 6, 1925.

HOW DUCKS CARRY THEIR YOUNG.

The Editor of *The Emu*,

Sir,—In the review of " A Natural History of the Ducks " (*Emu*, Vol. XXIV., page 79) it is stated that Dr. Phillips is sceptical about ducks carrying their young in their beaks from nesting trees. This recalls to my mind an incident I witnessed a few years ago in the Solway College grounds at Masterton, N.Z.

I had the contract for clearing away some trees adjoining the play grounds, and used a traction engine for this purpose. One day while I was assisting to pull out a wire rope with the object of attaching it to a large branch, that had blown down, I was surprised to see a Grey Duck (*Anas superciliosa*) fly from under the branch. I was still more surprised when I noticed that the bird had a young duck in its bill. The bird flew for about four chains, and settled close to a creek. On examining the nest we found several broken shells and one addled egg. Apparently the duck had carried all the young ones away without being noticed.

The nest was on the ground amongst the grass within a chain of the main drive. There were about 100 girls attending school there, and some of them must have often been within a few feet of the nest. I have known of several nests of this duck being in trees, and often wondered how the young reached the water.

Yours, etc.,
Kapiti Islands, A. S. WILKINSON, R.A.O.U.,
New Zealand. Oct. 1, 1925.

DISTRIBUTION OF THE GOLDFINCH.

The Editor of *The Emu*,

Sir,—In the October issue of *The Emu* is an article by Mr. A. H. Chisholm *re* " The Spread of the Goldfinch." I wish to state that these birds are very plentiful in Glen Innes, which is sixty miles north of Armidale, and build every year in the garden. Incidentally, Armidale is about sixty miles north of Tamworth, and not south as the article leads one to imply.

New England Grammar School, Yours, etc.,
Glen Innes. A. M. LAWRANCE, R.A.O.U.
Nov. 12, 1925.

ZOSTEROPS LATERALIS.

The Editor of *The Emu.*

Sir,—As the subject of the Australian members of the genus *Zosterops* is discussed by Mr. Edwin Ashby in a paper in the October issue of *The Emu* (*ante*, p. 112) I would like to make a few remarks with regard to the New South Wales bird, *Z. lateralis.* My claim to be heard is that I have been familiar with this bird since the early "eighties" in the neighbourhood of Sydney, its type locality, and in districts in all parts of the State since. I have kept it in captivity and have noted its food and general habits.

Captive specimens have enabled me to observe its colour phases. One of the most conspicuous facts one notices in this respect is that the flanks, which in spring and summer are buff in colour, change in the autumn to a brighter rufous, which lasts until the following spring. This seems to be more marked in the males. This colour phase of the flanks usually coincides with the assemblage of the birds into flocks, which travel from place to place, frequently in company with Honey-eaters. At this time their food consists entirely of insects as nectar, fruit and berries are scarce at that season.

The colour of the throat is bright yellow at all times, though occasionally one finds an individual with a grey throat. In my experience this is extremely rare. At one time I had in my possession alive for fifteen months an individual with a grey throat with no trace of yellow. It remained so throughout that period, thus disproving the supposition that the grey throat might be a seasonal variation. This bird I caught at Croydon, near Sydney, and, from its general behaviour, I concluded it was a female. In this individual the flanks did not change colour from buff during the colder months. It was a typical grey-mantled bird in all respects except the colouring of the throat and was undoubtedly *Z. lateralis.*

I might mention that *Z. lateralis* is one of the comparatively few birds of New South Wales that shows a tendency to exhibit albinism. I know of two cases of this. One which came personally under my notice was shot at Ashfield, near Sydney, in January, 1912, and I obtained possession of it a few hours after death. To all intents and purposes it was a pure albino, the prevailing colour being pure white, with a slight tinge of yellow in the situations which are normally green or yellow, viz., the head, throat, wing, lower back and upper tail-coverts. In albinos amongst birds this tinging with yellow of parts which are normally green or yellow seems to be the general rule and is well represented in Parrots, *e.g.*, the Rosella (*Platycercus eximius.*)

Before leaving the subject of *Z. lateralis* I would like to say a word in this bird's favour. Normally and most of the time it is insectivorous, and in the autumn and winter months absolutely so. It is extremely useful in attacking aphides, moths of all kinds and dipterous insects in all stages; small spiders also form part of its diet. This insect diet is essential to it, though, like its relatives the Honey-eaters, it is partial to nectar from flowers and feeds on native fruits and berries of numerous kinds. It has made many enemies from its propensity for attacking orchard fruit, especially the softer kinds. This is its one cause of offence, but when this factor is weighed carefully against its other wholly useful activities an impartial observer must place it unhesitatingly among our most valuable birds. The comparatively small amount of damage done is overwhelmingly offset by the number and variety of noxious insects it consumes and this should warrant it a place among our protected birds.

Comboyne, N.S.W. Yours, etc.,

E. C. CHISHOLM, M.B., CH.M.
Nov. 13, 1925.

THE CALLS OF THE FROGMOUTH AND BOOBOOK OWL.

The Editor of *The Emu*,

Sir,—In the October issue of *The Emu* Mr. David Fleay has an article on " The Boobook Owl and Tawny Frogmouth " and since he has these two birds under surveillance in captivity his position is unassailable as regards knowledge of their habits. His observations in reference to the calls of both these birds entirely confirm my contention in articles in the *Australian Zoologist* (Vol. 3, 1923-4, pp. 69 and 213). The " Morepork " call of *Podargus strigoides* is louder, more prolonged, with longer intervals between and heard over a greater distance than that of *Ninox boobook.*

It is usual to find the Frogmouth in open Eucalyptus forest where it relies for its protection on mimicry, of which it is one of the best exponents we have. It is generally well exposed to view on a stout limb, often with cover such as a broken off branch above it to protect it from the eyes of hawks. Frequently one sees a pair together, either perching within a few feet of each other or on different limbs of the same tree.

I have known this bird to take up its quarters in the vicinity of a stable and have seen it on the roof, sleeping by day, looking exactly like a piece of timber attached there. The mice, which were numerous, had attracted it to the stable buildings. As it takes a big toll during the night it is a very valuable bird.

It appears to be almost silent in the winter months, uttering its call in spring and summer. Its habit of erecting itself to form an angle with the branch on which it is resting, on the approach of danger, and of closing its eyes to mere slits, aided by its colour and the tuft of feathers above its bill, gives it a striking resemblance to the butt of a broken off branch and must aid considerably in its protection.

The Boobook Owl on the other hand relies for its protection on hiding by day in dense foliage among more stunted growth or in hollows. When it is hunted into the more open spaces it is attacked by smaller birds which mob it unmercifully. Its call corresponds more to the word " Mopoke," being shorter, not so loud, with shorter intervals between and often uttered many times in quick succession.

I am glad this matter of the respective calls of these two birds, which has been the subject of controversy for some time,* has been finally settled to the decided advance of ornithology and Mr. Fleay is to be congratulated on his success in bringing the matter to finality.

Comboyne, N.S.W. Yours, etc.,
E. C. CHISHOLM, M.B., CH.M.,
Nov. 13, 1925.

THORNBILLS (*ACANTHIZAE*).

To the Editor of *The Emu*,

Sir,—In Mr. A. G. Campbell's masterly paper on the *Acanthizae* he calls attention to individual variation amongst birds. I quite agree with him that sufficient weight is not given to this point when considering the question of possible sub-species.

Despite their small size, *Acanthizae* are hardy little birds, able to endure wide ranges of heat and cold. In Central Australia, and in the interior of this State, the thermometer frequently registers temperatures of 28° and 80°, within twelve hours, during the months of July and August.

What is the average duration of their lives is difficult to surmise; but I think ten years—taking into consideration all the accidents of the bush to which they are liable—would be about the limit. Individuals would therefore be in their prime at five years. At this period contrasts in their plumage would be most pronounced.

Few Passerine birds in Australia breed before entering upon their third year. It would be a great help if collectors, when labelling skins, would record their impressions as to the age of individuals when obtained.

An error as to localities has crept into Mr. Campbell's remarks on *A. uropygialis* (*Emu* XXV, pp. 66-7). Ebano (6972) is not in the desert. (Arid country is a more appropriate term than desert.) It has a mean annual rainfall of 18 inches, and is in about the same longitude as Moora (62). Ebano is just on the verge of the tableland, south-east of Geraldton. This does not affect Mr. Campbell's conclusions, as there is sure to be some overlapping of ranges.

With regard to absence of water in arid regions; this difficulty is overcome to some extent, I always think, by birds nibbling sappy foliage, like that of the salt-bush or samphire. Moisture is often present on the leaves of such shrubs in the very early morning.

111 Colin St., Yours, etc.,
West Perth, W.A. F. LAWSON WHITLOCK,
Oct. 26, 1925.

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*[Among other references, see *Emu*, X. p. 246, XIII p. 215, XIV. p. 206, XV. pp. 53 and 55, XXIII. p. 226, XXIV. p. 302.—EDITOR.]

CORMORANTS IN THE NORTH OF WESTERN AUSTRALIA

To the Editor of *The Emu*,

Sir,—In my recent paper referring to the birds found on the Fitzroy River, I recorded the Pied Cormorant, as frequently seen on the larger pools (*Emu* XXV, p. 79). An editorial foot-note suggests that I have mistaken the Little Pied Cormorant for the Cormorant in question.

I am thoroughly well acquainted with both species. The small black and white species breeds in numbers within a quarter of a mile of my late home at Wilson's Inlet in the south. Moreover, in Western Australia I consider it a south-western species, becoming rare in the tropics. On the other hand the Pied Cormorant breeds in large colonies from the Abrolhos islands northwards. On the Fortescue River it is a regular visitor to the big permanent pools at Mill Stream Station, seventy miles inland.

The birds on the Fitzroy were seen at close quarters, both at rest on limbs of trees, and diving in the pools in search of fish. There is nothing remarkable in their occurrence inland. In Central Australia three species of Cormorants were commonly noted on the Finke River during my trip in 1923.

111 Colin St.,
West Perth, W.A.

Yours, etc.,
F. LAWSON WHITLOCK,
Oct. 26, 1925.

[We apologise to Mr. Whitlock for doubting his record, but cannot altogether regret the insertion of the footnote since it has elicited interesting and valuable information about the distribution of Cormorants in Western Australia. In Mathews' *Birds of Australia* North-West Australia is not even included in the range of the Pied Cormorant. These birds have been much neglected by Australian ornithologists and it is certain that many of the records published in the past have been erroneous, particularly in regard to the occurrence of the White-breasted Cormorant (*P. fuscescens*). In Queensland, according to our observations, the three species found on inland waters are *P. carbo*, *P. ater* and *Microcarbo melanoleucus*, the last-named being the commonest. These three species are the only ones found in New Guinea and the Malay Archipelago, and no doubt reached Australia from the north. On the other hand *P. fuscescens* and *P. varius* belong to a group with a characteristically Antarctic distribution. There seems to be no authentic record of the former on the east coast of Australia, while the latter becomes rare north of the tropic of Capricorn.—*Editor.*]

Reviews.

"LAST LEAVES FROM DUNK ISLAND."

All Australian nature-lovers will welcome the appearance of a further series of articles from the pen of the late E. J. Banfield, and will regret that the word "last" must appear in its title. The volume before us, edited by Mr. A. H. Chisholm, and published by Messrs. Angus & Robertson, Ltd., of Sydney, to whom we are indebted for a copy, has all the literary charm and fascination of "The Beachcomber's" previous works, and is moreover embellished with a map of Dunk Island, many fine illustrations of the scenery and natural history of the island and several portraits of the writer who made it famous throughout the world. In a brief introduction Mr. Chisholm gives an outline of the author's life and a delightful sketch of his character.

These "last leaves" are grouped into three parts according to their subject-matter. Part 1 comprises essays on the weather and scenery of the island, amongst which that entitled "The Tempest" describing the 1918 cyclone and its effects, is not only a fine piece of writing but contains observations of much scientific interest. Whole volumes have been devoted to the repopulation of Krakatoa with plants and animals after all life on the island had been destroyed by the great volcanic eruption. Whilst the effects of the cyclone on Dunk Island were not quite so drastic, it appears that thousands of birds and other creatures were killed and great areas of forest trees laid low. In their place thick jungle growths sprang up so that one result appears to have been the increase of scrub (or jungle) country and a decrease of forest country. After reading this section one's regrets are increased that this keen observer was not spared longer to give us fuller accounts of these changes. Part 2 contains a further series of aboriginal stories which illustrate in a delightful way some aspects of the mentality of the Australian race.

Part 3 consists of essays on natural history of which six deal with birds. These are entitled "Metallic Starlings," "The Sunbird," "The Swamp Pheasant," "Swifts and Swiftlets," "Character in Birds," and "A Sanctuary Problem." All bird-lovers will delight in the first five which give character-sketches of several of the most familiar birds of coastal North Queensland, and are illustrated by excellent photos of some of the species by Messrs. W. G. and R. C. Harvey and A. H. Chisholm. The last essay mentioned calls for serious consideration from all those interested in the preservation of Australia's bird-life. Dunk Island has been a sanctuary for over twenty years during which time "all birds, save two predatory species, have been unmolested." Writing in 1921 Banfield states: "It was natural to expect that the result of the policy indicated would be a progressive increase in species and individuals, until these islands became the resort of an innumerable concord of happy birds—indeed, that as the years passed there would be few native to North Queensland unrepresented in an undisturbed community. These anticipations have not only been unrealized, but hard facts show that, instead of increase, there have been, with few exceptions, serious decreases in species, and in some instances absolute loss." . . .

" Comparison between the census (compiled early in the occupation of the island) and the depreciated numbers of recent years show that from the birds of prey the sparrow-hawk, kestrel, black-shouldered kite and black-cheeked falcon have disappeared. Out of forty perchers eleven are missing—yellow oriole, yellow figbird, black-backed magpie, black-headed diamond-bird, helmeted friar-bird, silver-eye, and the blue, pied, shining, white-eared and spectacled flycatchers. The purple-breasted and white-headed fruit-pigeons, pied oyster-catcher, masked and golden plover and the plumed egret have not been seen for years, and among the sea-birds the lesser crested, sooty and bridled* terns find no place at date (1921).

" With the exception of swiftlets, scrub-fowls, swamp pheasants, brown-winged terns and pied cormorants, an all-round decrease in numbers has to be recorded, and no species save the brown-winged tern has the credit of increase. Among the more notable species showing decrease are :—Nutmeg, red-crowned and little green pigeons, metallic starlings, rainbow-birds, rainbow lorikeets, white cockatoos and mistletoe-birds."

Whilst the disappearance of the small perching birds is attributed to the effects of the cyclone, the writer holds that " an undoubted truth emerges upon even a superficial glance at the subject—that birds of gregarious habits which happen to be endowed with the gift of beauty, or are in any way associated with what is known as sport, are the first to be doomed." This suggests that the emissaries of the plumage trade are still at work in North Queensland or in the winter quarters of some of the species in New Guinea. It is clear that the passing of an Act in Brisbane to protect the birds has little or no real effect in the jungles a thousand miles north. What is required now is an active society in North Queensland, similar to the Central Queensland Native Birds' Protection Association, to insist on the enforcement of the Acts.

If " the Beachcomber's " plea should lead to the establishment of such an association it would be the best possible tribute to his memory in that part of Australia which his books have so greatly helped to reveal to the world.

One's inclination to quote other passages and discuss other points raised must be restrained, though it may be cited as a tribute to the vital interest of the book. Those who are already familiar with Banfield's works will only need to be told that this one is of the true vintage, and, with its glossary and illustrations, should be at hand when any of the author's earlier works are being consulted. If any readers of *The Emu* are not familiar with " the Beachcomber " we envy them the treat in store.—.W.B.A.

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*This is obviously a mistake. Bridled tern is an alternative name for the brown-winged tern mentioned in the next sentence.—EDITOR.

"ON THE EDGE OF THE BUSH," by REV. H. S. LEGGE, M.A.

This is a booklet of verses divided into three parts:—(i) "From A Dining-room Window"; (ii) "Bedtime for Little Boys"; and (iii) "Casual Callers."

"Casual Callers" most concerns the bird-lover, because it deals with familiar native birds. The ornithology of poets is not always correct, but Mr. Legge has taken no "licence" in his pleasant nature-notes. As illustrations, we may quote sample lines.

"To A Laughing Jackass"—

Hallo, old man of the wood!
Patriarch of the laughing brood!
I believe thou hast been here
Nigh upon a thousand year
Thou dost look so old and queer
And perhaps a thousand yet
When day and night are met
Shall, as now, behold thee set
Hoary-headed, spectral, grim
On a eucalyptus limb.

"To A Fantail"—

Willie Wagtail, spick and span
Dapper little gentleman—
Whimsical inconstant sprite
Long I've watched thy vagrant flight
Thou art here and thou art there,
Turning, swishing, light as air,
And thy tail is always wagging
With an energy unflagging.

"Magpies in Autumn"—

But when Summer slips behind
 And Autumn days begin,
The birds a second impulse find
 And pipe them in.

The "pipe" is suggestive of "Piper" as a vernacular for the Magpie on the new check-list of Birds. So is the couplet "The Magpie's Pipe."

"The Making of the Blue Wren"—

How he sings and seems to say
"Everybody, look this way—
Look and look and look again! "
Doubtless he is vain, but then
Such a lovely gem as that
Is a thing worth looking at.

Mr. Legge introduces a new thought as to the reason why the Blue Wren's mate should fight her shadow on a window-pane. Because she—

Conceived (strange cause for battle) her reflection
To be a rival for her lord's affection.

" To a Wood-Swallow." These lines are very descriptive and commence with—

Blue-black, swing-tail summer-bird

Then there is " The Friar Bird "—

Gaunt and sombre, with queer ebon poll.

There is a distinct lament connected with the stanzas " To A Lorikeet "—

Once more I am a boy of ten—
I roam about the bush again,
And mark, with pleased and curious eye
How birds build nests, and feed and fly.

But sometimes other moods hold sway—
My spirit finds another way;
Strange a destroying thought could spring
Towards so beautiful a thing!

How many of thy joyous race
On guilty sunny holidays
Have fallen to my fatal aim!—
And yet e'en then I felt the shame.

O bird I would not shoot thee now;
Safe art thou on the lowest bough—
Only with pleased and curious eye
I'll watch thee swing and feed and fly.

The booklet is artistically printed by Edward A. Vidler, 189 Little Collins St., Melbourne. Price 2/6.—A.J.C.

Notes and Comments.

Mr. Mark Cohn, convenor of the Migration Committee, informs us that since the annual report of the Committee was published in the October number of *the Emu*, two more members have promised to furnish reports on their observations, viz., Mr. A. S. Le Souef of Sydney amd Mr. J. F. Gogerley of Wallis Lake, N.S. Wales. We would again urge members to send reports of their observations on migratory birds to Mr. Cohn.

Mr. H. L. White of Belltrees, Scone, N.S.W., has offered to the Council of the Union the sum of £50 for two years to provide suitable accommodation for the Union's headquarters in Melbourne, provided that Victorian members subscribe a like amount during a similar period.

Several members of the Union resident in N.S. Wales and Queensland took part in a camping expedition to the Capricorn Islands organised by Mr. E. F. Pollock, Hon. Sec. of the Royal Zoological Society of N.S. Wales. The party of 15 left Brisbane on Nov. 23rd for Gladstone, the nearest port to these islands. It will be interesting to learn whether any changes have occurred in the bird life of the group since the avifauna was investigated by the R.A.O.U. in October, 1910. (*Emu* X, pp. 181-204.)

The following have been enrolled as members of the R.A.O.U. since August, 1925 :—In New South Wales : Mrs. Gilchrist, Mrs. K. Cameron, Miss J. Martin and Messrs. R. Abbot, A. Borthwick, F. Buckle, Chalmers, C. W. Hook, A. F. Jones, J. Hudson, N. Laughlan, G. W. Richmond, and G. A. Smith ; in Victoria : Messrs. H. W. Bunn and F. Meyer ; in Queensland : Mrs. T. W. Bouchard, Mr. J. J. Kileen ; in New Zealand : Mr. L. W. McCaskill ; in Belgium : Dr. Bruno Luig. The following members have resigned : In N.S. Wales : Mr. G. H. Hardie ; in Victoria : Mr. E. A. Harber ; in the United States : Mr. L. L. Redick.

The *Norsk Ornithologisk Tidskrift* published by the Stavanger Museum, Norway, has been added to the list of ornithological journals received by the Union in exchange for *the Emu*.

Mr. P. A. Gilbert resigned his membership of the Council in August. This left the State of New South Wales without any direct representative until the Annual Meeting when new members of Council from that State were elected.

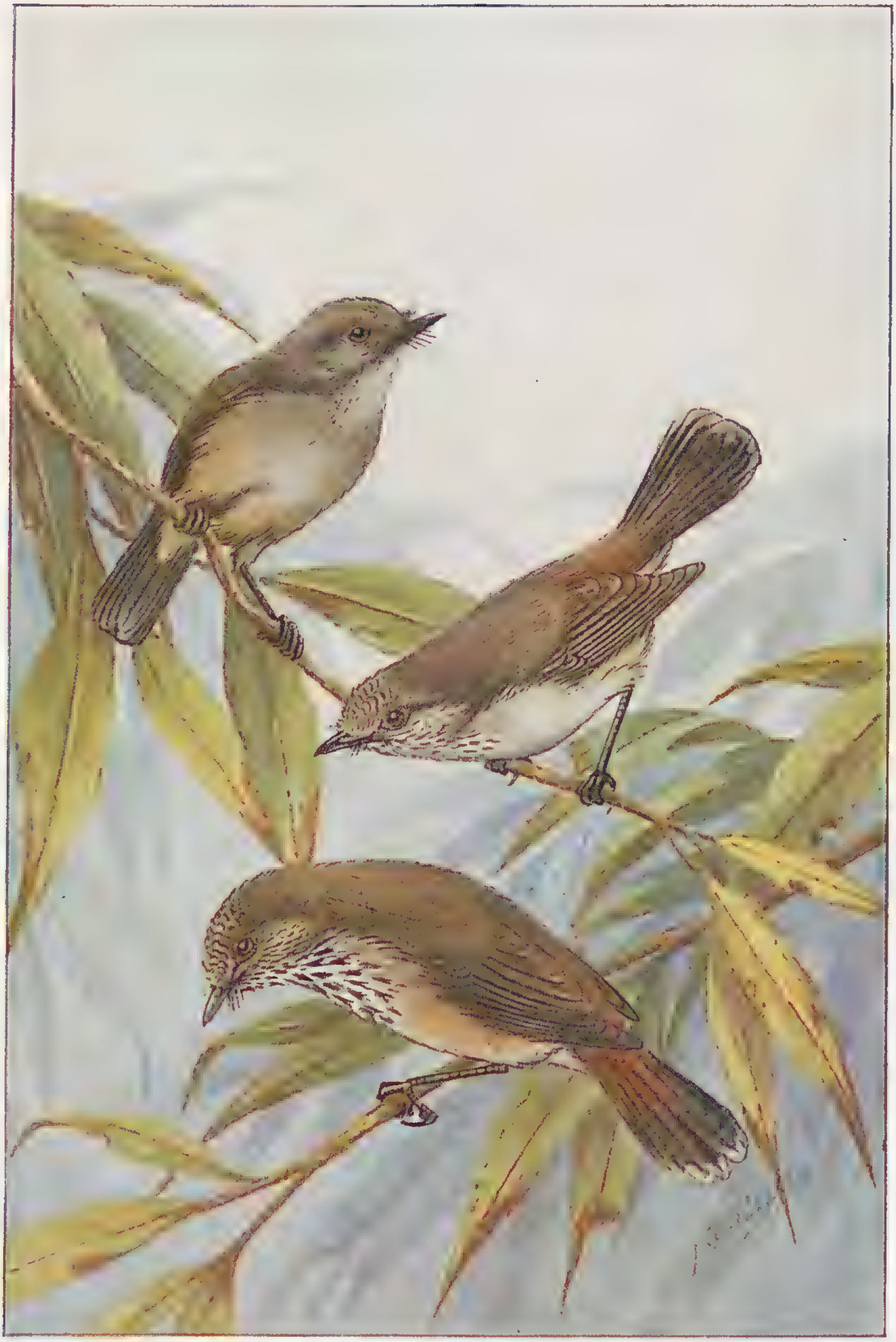
A letter has been forwarded to the Hon. the Chief Secretary of Victoria informing him that the Victorian members of the Council of the R.A.O.U. approve of the Amending Game Bill recently introduced into Parliament and urging its speedy passage.

The following motion, proposed by Mr. R. T. Littlejohns and seconded by Mr. A. H. E. Mattingley has been carried by the Council: "That the Council of this Union urges the Governments of all the States to introduce legislation prohibiting the use of live birds for trap shooting."

The editor intends to visit England during the present year and has been granted leave of absence by the Council. Mr. A. H. Chisholm will act as editor during his absence, and until further notice all contributions for *The Emu* should be addressed to him at the "Daily Telegraph" Office, Sydney.

Contributors are requested where possible to send articles in type or at least to write clearly and to print all scientific names.

The date of publication was Feb. 11, 1926.



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THORNBILLS.

(*Upper figure*): Mountain Thornbill ♂ (*Acanthiza katherina*)
(*Centre*): Western Red-tail Thornbill ♂ (*A. whitlocki*).
(*Lower*): Allied Thornbill ♂ (*A. albiventris*).

From a painting by Neville W. Cayley, R.A.O.U.

The Emu

OFFICIAL ORGAN OF THE
ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION

"Birds of a Feather."

Vol. XXV.] APRIL, 1926. [Part 4

NATIONAL MUSEUM MELBOURNE

Birds of the Capricorn Islands.

By W. MacGillivray, M.D., C.F.A.O.U., Broken Hill.

Through the courtesy of Mr. E. F. Pollock, honorary secretary of the Royal Zoological Society of New South Wales, I was privileged to join a small party of zoologists, nature photographers and bird-lovers organised to spend three weeks during November and December, 1925, in investigating the life on North West Island and any others that we could of the Capricorn Group, Queensland.

With the Sydney members of the party, Mr. Pollock, Mr. and Mrs. C. Coles, Mrs. V. Lowe, Miss E. E. Chase, B.Sc., Messrs. A. Musgrave, J. P. Whitley, P. A. Gilbert, C. Nolan and J. F. Newns, I left by the Brisbane express on 22nd November, arriving in Brisbane on the following evening. We were met by Mr. W. B. Alexander and other local bird-men and joined by the Queensland members of our party, Miss Hilda Geissmann and Messrs. Otho Webb and W. Curtis. As we had a few hours to wait we were taken to a picture theatre to see some wonderful reproductions of nesting Sooty Terns (*S. fuscata*) taken on Oyster Cay, near Cairns, during a recent visit paid by Professor H. C. Richards and Mr. Alexander to that interesting spot.

We took our seats in the northern train at 9.30 p.m., arriving in Gladstone in time for lunch on the 24th. Having that afternoon and the following morning free till 10.30 a.m., Mr. Gilbert and I made short excursions into the open spaces near the town and investigated the foreshore, which enabled us to identify a few species; these I have added to the island list.

We left Gladstone, crowding into a small motor boat, at 10.30 a.m., and leaving the fine harbour, made slow progress out against a head wind and sea in a north-easterly direction, passing Mast Head and Erskine Islands on our way and arriving at our destination just before dark.

The Great Barrier Reef, the most extensive coral formation in the world, extends from Bramble Cay, in Torres Straits, just below the 9th parallel, for one thousand two hundred miles down the east coast of Queensland, to end at Lady Elliott Island, on or about the 24th parallel. The Capricorn Group, of a dozen or more coral islets and reefs, is at the southern end of the Great Barrier Reef lying between the 23rd and 24th parallels of latitude, and is so named because the tropic of Capricorn passes through the middle of the group.

The Bunker group is contiguous to the south, separating the Capricorns from Lady Elliott Island. The whole group lies approximately 40 miles east by north of Port Curtis and the town of Gladstone.

Well-known to many bird-lovers as a breeding haunt of several species of sea birds, it has been visited on several occasions by naturalists. A camp-out of the Royal Australasian Ornithologists' Union was held there in October 1910, and much work was done and duly recorded in *The Emu.* Since then the Capricorn Group has been gazetted as a sanctuary for bird life, so that no member of our expedition used a gun; nor were any specimens of birds or eggs taken. This did not prove a very great hardship, as most of the species met with were well known to some or other of us who were interested in bird life. However, several of the migratory waders, shy and restless birds, did not allow of close or repeated examination, even with binoculars, and had to be left out of the following list.

As to the land birds on the islands, the question has arisen before whether they are insular varieties or identical with the forms on the adjacent mainland. From this they are only separated by about thirty miles of water in the case of Mast Head Island and thirty-five in the case of North West Island, distances that can easily be bridged by birds of only moderate powers of flight. Three species, all well represented on the mainland, *Zosterops lateralis*, *Strepera graculina*, and *Halcyon sanctus*, certainly breed on the islands, and probably also *Geopelia humeralis*.

The *Zosterops* has been the subject of a good deal of controversy, which perhaps we could have settled by getting a series of skins. On the mainland this species is a great wanderer, is widely distributed, and migrates in flocks from one district to another. Numbers occasionally appear in Broken Hill, for example, after an absence of years, and who knows that the species may or may not be absent from the islands during the winter months? At the upper end of the Barrier Reef the islands are occupied by a distinct species, *Z. albiventris*, which confines itself to them, whereas on the adjacent mainland a very distinct sub-species, *Z. lateralis vegeta*, is found and is fairly common.

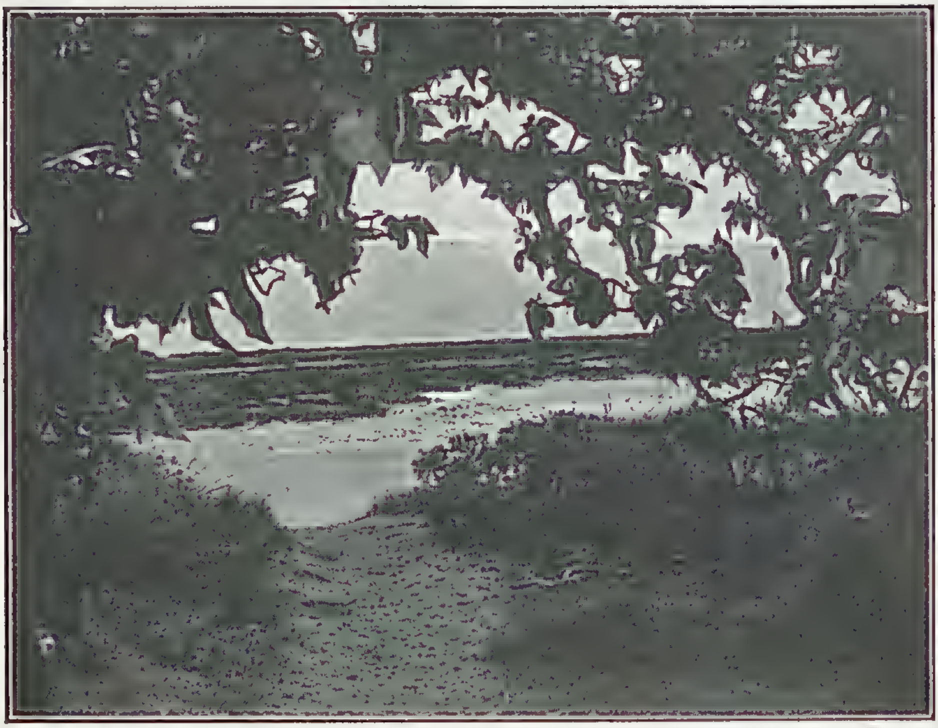
Halcyon sanctus migrates regularly on the mainland and is probably absent from the islands during the winter months.

The Dove, *Geopelia humeralis*, is a strong flier, and a thirty or forty mile stretch of water would not trouble it.

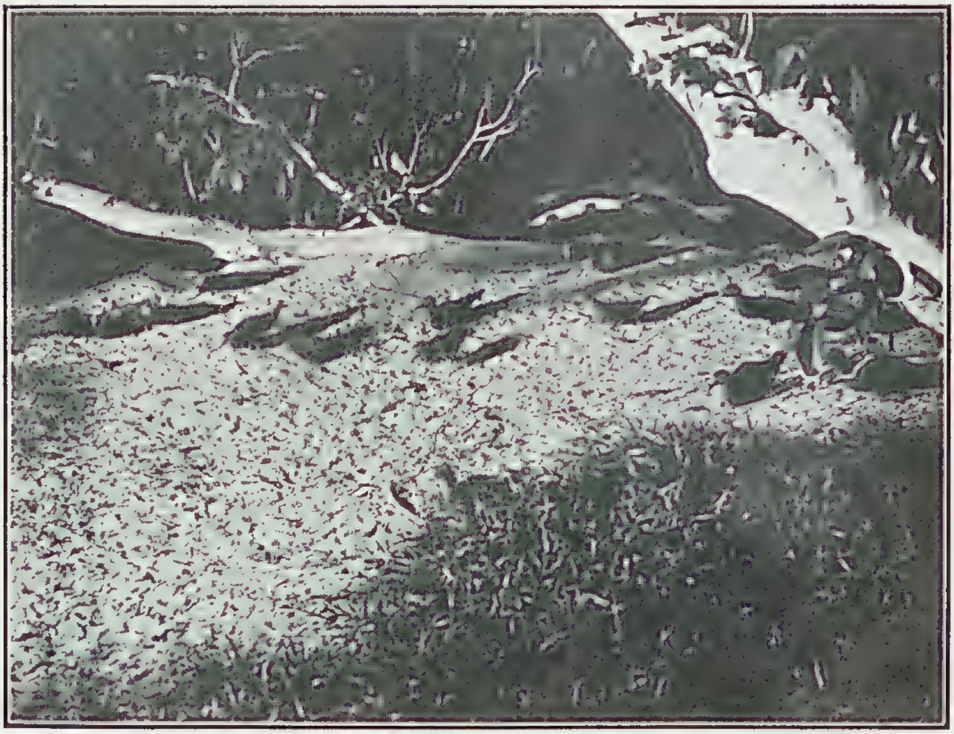
Strepera graculina is the only one likely to remain for any time, and in support of this comes the opinion of two reliable field observers, in Miss Geissmann and Mr. Gilbert, that the call note of the island bird differs markedly from that of the mainland species, though the birds seem to be in every other respect identical.

The domestic fowl, *Gallus ferrugineus* (*bankiva*) lives on North West Island in a feral state, having been released or left there many years ago, and seems to thrive quite well in spite of the fact that there

NATIONAL MUSEUM MELBOURNE



WEDGE-TAILED SHEARWATERS' "RUNWAY," NORTH WEST ISLAND.
Photo. by A. Musgrave.



WEDGE-TAILED SHEARWATERS "TAKING OFF," NORTH WEST ISLAND.
Flashlight Photo. by A. Musgrave and P. A. Gilbert. (Photo. taken at 4.10 a.m.)

is no fresh water on the island. They keep to the thicker scrub and forest and we did not see any near the sea shore. It is unlikely that they drink sea water; they must depend upon green vegetation for necessary moisture as there are, or were at the time of our visit, very few ground insects. The cocks were being shot by the employees of the turtle factory for food, and were all in good condition. In plumage they had reverted to the black-breasted game type of their ancestors of the Indian jungle. Several hens were found sitting on clutches of 10 to 13 eggs by different members of our party, and allowed of quite a close inspection before taking alarm. These nests were usually on the ground amongst fallen tree trunks, or up in a cavity in the base of some big *Pisonia.* Several broods of chickens were also seen. The turtle people caught some of these and told us that they were easily domesticated again.

Wild cats on the island must levy a toll upon these birds when Petrels are not so plentiful as they were at the time of our visit. The cats, however, are miserable looking creatures, and I do not think that they thrive well on the island, as they are not numerous although they have been on the island for many years. It would be well if they could be exterminated.

Detailed observations follow :—

Peaceful Dove (*Geopelia placida*).—Several of these peaceful and widely distributed birds were seen in and about Gladstone.

Bar-shouldered Dove (*Geopelia humeralis*).—A common bird at Gladstone, but only one pair noticed on North West Island during our stay. There were at least two pairs on Wilson Island and more still on Tryon Island, both much smaller islands. Noddies were not there to interfere with them, and owing to the absence of wild Fowls (*Gallus*) there is a better feeding-ground for a seed-eating species.

Buff-banded Rail (*Hypotaenidia philippensis*).—Three of these birds were seen at close quarters in the scrub on Tryon Island, but none was seen on either of the other islands. I have seen this species on many of the islands of the Barrier Reef, from Cooktown to Cape York. On Raine Islet I found them sheltering from the heat in the Shearwater burrows.

Wedge-tailed Shearwater (*Puffinus pacifius*).—We first saw this species after leaving Port Curtis on our way out to North West Island. Many were skimming over the surface of the sea in easy and graceful flight, just touching the water first with one wing tip and then the other in their constant search for the smaller medusae and such like creatures that constitute their principal food. It was late when we landed, and we were soon made aware of the fact that we were in time for their nesting. Subsequently, we were able to make many observations of their behaviour during this interesting time.

When the day is closing in and the last of the White-capped Noddies are passing over to their nesting trees, the Petrels begin to gather from all directions and to fly in rapidly increasing numbers up and down over the shallow water of the reef till the sky seems to be alive with them. As it grows darker they begin to fly in singly, then in twos and threes at shorter and shorter intervals till they are streaming in on to the island from all sides. Each bird drops silently and precipitately on to some chosen spot, either amongst the grass and shrubs of the outer zone of vegetation, where the sandy soil is all uneven with holes and mounds of previous burrowings, or into the *Pisonia* forest community which occupies the greater part of the centre of the island. It is here that the burrows are thickest. The *Pisonia brunoniana* grows in loose, sandy soil in association with a few other trees, with some undergrowth, principally of a trailing composite, *Wedelia biflora,* and a few other herbaceous plants. The soil is so undermined with the burrows as to make progress through the forest a very difficult and uncomfortable matter. One is constantly breaking through the loose and friable soil into the burrows, barking one's shins on the roots, and getting footgear full of sand and grit, spoiling one's temper and disturbing many an indignant bird from its reposeful slumbers.

There are many open spaces amongst the *Pisonias* quite bare of ground vegetation where we found that the birds congregated at night to court their old partners anew, or to select other mates for better or for worse. Leading out from these mating and nesting areas are pathways which join with others to form main thoroughfares, and these pass out to some vantage-point at or near the edge of the vegetation overlooking the sea. These roads are trodden bare and firm by the constant patter of thousands of little feet hurrying out to sea every day at earliest dawn. They are from two feet to two yards or more in width, and one finds them coming out on all sides of the island. Our camp obstructed a main exit from the forest, and there were burrows all around us, so that we could watch the birds without moving far from our tents ; and they frequently came in to rest awhile or pass through.

When the birds come in from the sea they seem to drop down anywhere and start to look for a mate. It seems likely, however, from observations made on the Short-tailed Shearwater (*vide Emu*, Vol. xxiv., Part 2, pp. 86-89) that the birds tend to return to the previous season's burrow or its vicinity, and that in many instances they mate up with the previous season's mate. I really think that the sexes come back independently and either wait or search the neighbourhood for the old mate before making a fresh choice.

In courting, the male, when approaching a female, utters a low moan, crouching down, extending head and neck and blowing out the gular pouch in doing so. The expiratory moan is followed by a short, stridulous, or croupy inspiratory note ; this is kept up at about a yard's distance for some time and the space gradually lessened if the female waits. The note then becomes more frequent and changes to a loud wailing or crooning call. When more than one male approach the same female the calls are redoubled, one trying to outdo the other. The result is a loud caterwauling, which reaches its climax when the female indicates her choice and one male makes off to sing his song to a more willing Juliet, or when the lady runs off, leaving two disconsolate males to try their luck elsewhere.

Many approaches of male to female seem to take place before a pair commence love-making in real earnest by bill-to-bill caressing, then stroking of one another's heads and necks by bills, a low murmuring sound being emitted and continued more vigorously when mating is finally consummated. The pair then rest side by side for awhile before the female starts to inspect a near-by burrow, perhaps last year's old one, which the lady inspects and goes in to clean out from the entrance. She kicks the dirt out vigorously, using both feet alternately, and the sand and other debris issue in an almost continuous stream. Once I saw both birds go in side by side, both kicking the sand out as they went in.

The noise made by the mating birds commences soon after their arrival, and gradually increases in volume until it assumes the proportions of a loud murmuring roar coming from all over the island, above which one can distinguish every now and then louder moans and wailings, or cries as of anger or pain. Belated birds sometimes fly in wailing from the sea ; and the mournful call then seems to come from the air. It is little wonder that the superstitious sailors and travellers who visited these bird islands in earlier times considered them to be the abode of evil spirits or lost souls.

All this noise gradually died down after the first few hours, but never entirely ceased, beginning again with redoubled violence before dawn, when the birds were issuing from their burrows and preparing to leave again for the sea. The increase of sound and the scurrying of the birds through our tents, or the bumps caused by their colliding with the canvas and their efforts to scramble up the sloping roof of tent or fly, invariably woke most of us at about 3 a.m., to listen to the babel of sound or to get up and wend our way to one of their outgoing pathways in order to witness the manner of their exodus.

At 3.30 a.m. the Shearwaters would be coming out four or five at a time. I tried to count them on one occasion, but after the first thousand had to give in, for they were issuing in an almost unbroken stream. On a main pathway they

[illegible]

NESTING AREA OF ROSEATE TERNS.

NEST AND EGGS OF ROSEATE TERN.

Photos. by W. MacGillivray.

would be hurrying along four or five or more abreast, and being joined by others from subsidiary pathways on both sides. The birds hopped along with closed or half-closed wings, jostling, bustling, and occasionally quarrelling, as though their lives depended upon their getting out at the earliest possible moment. And like many a human mob, they were subject to panic, for when one of us stumbled or tripped in the obscurity, the birds would scatter and flutter in all directions, stirring up quite a cloud of dust with their flapping wings and scurrying feet.

One pathway ended in a slight elevation with dry bushes a few yards in advance. Several of the birds collided with these and a few were disabled in doing so. By about 4.30 a.m. only a few stragglers were coming out and the noise had died down. At this time the Noddies were beginning to fly out from the island. Quite the reverse of their coming in, the Shearwaters now flew right out to sea beyond the reef, whereas the Noddies congregated to fly up and down over the shallow reef water for some time before doing so.

On their way out along the paths many unmated Shearwaters dallied on the edge of the crowd, hoping by their moanings and croonings to fascinate some passing unmated females, and several were successful in their quest. Mating was going on during the whole period of our stay on the island, and eggs were becoming more frequent in the burrows towards the end of that period.

Considering the host of birds on the island, there did not seem to be a very great mortality. The Sea-Eagles lived mostly upon them. The cats, wild on the island, found them an easy prey, and we often found evidence showing that these birds had been killed and eaten by them. They are not put to commercial use like the Mutton-birds (*P. tenuirostris*) off the Tasmanian and Victorian coasts, where there is a trade in smoked young birds and in eggs.

Little Pied Cormorant (*Microcarbo melanoleucus*).—A pair of these birds were seen on the reefs at North West Island and afterwards perched on a tree top on Tryon Island.

Caspian Tern (*Hydroprogne caspia*).—A pair were seen over the shore at Gladstone.

Roseate Tern (*Sterna dougallii*).—Numbers of these birds were nesting on the eastern side of Wilson Islet, on a beach of rough shingle composed of worn lumps of coral and shells. The half nearest the vegetation was occupied by this species and the other half nearer the sea by the Black-naped Terns. The nests, mere depressions in the shingle, contained clutches of two eggs, mostly at an advanced stage of incubation. A few downy chicks were either in nests or crouched amongst the coral, and many older ones were sheltering under the *Scaevola* and *Tournefortia* bushes. The parents of the latter betrayed their hiding places by perching on the bushes and hovering over them and uttering shrill cries. The roseate coloring which gives the bird its name can only be seen in certain lights, especially when the bird is on the wing.

Crested Tern (*Sterna bergii*).—Frequently seen in odd lots or pairs on the shore at North West Island. On Wilson Islet one egg was found with two eggs of *Sterna dougallii* in a depression, and two or more broken eggshells of this species. Several of the birds were perched along the shore line. They were also observed on Tryon Island. Mr. Stanley, of the Sydney University Department of Geology, who came ashore from the survey ship *Moresby*, told me that a colony of these birds were nesting on Mast Head Island.

Lesser Crested Tern (*Sterna bengalensis*).—A few of this species were seen hawking over the open sea on our way out to North West Island, and also on our way to Wilson Island.

Black-naped Tern (*Sterna sumatrana*).—This elegant little Tern was nesting on Wilson Island on the same shingle beach as the Roseate Tern, but occupying the strip of beach near the high tide line, the Roseate being on the upper half near the vegetation.* In 1910 I found these two species nesting on Bush Island, in Torres Straits, and occupying the same relative positions; the Black-naped was nesting just above the water-line in crevices and depressions in the rock, whereas the Roseate had trampled down the coarse grass on the top of the island to form depressions in which to nest. Here on Wilson Island the Black-naped Tern's eggs, lighter in ground coloring and more finely spotted than those of the Roseate, were placed in depressions in the shingle and were also at an advanced stage of incubation. Many had hatched out. The nests containing one egg were mostly the result of misadventure, or due to the depredations of Gulls. One nest only contained three eggs.

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*Is not this the most southern record of this rare Tern ?—EDITOR.

Bridled Tern (*Sterna anaethetus*).—A pair of these birds was first noticed sitting on a stranded log on the foreshore at Gladstone. On our way out and back from North West Island several were seen hawking over the shoals of fish or searching the surface of the waters. On Tryon Island quite a number were nesting on the ground beneath the *Scaevola* and *Tournefortia* bushes. They became very excited, hovering overhead and calling when the nesting area was approached. They lay a single egg and usually conceal it under grass herbage or under shelving stones, or cavities in rock.

Little Tern (*Sterna albifrons*).—This Ternlet was observed on several occasions on North West Island in small lots. A number were seen on Wilson Island near our landing place when we arrived. We did not find them breeding.

Noddy (*Anous stolidus*).—Odd birds were observed on the shore on North West Island and over the open sea. A dead bird was picked up on the beach on North West Island.

White-capped Noddy (*Anous minutus*).—This species soon came under observation on our way out to North West Island, numbers being seen hawking over the sea either singly or gathered together over a shoal of fish, into which they were repeatedly diving. They increased in numbers as we approached our destination. We landed late and many were seen flying in on to the island, where we afterwards found them to be nesting in vast numbers in the *Pisonia* forest, which occupies the greater part of the centre of the island. In this forest the principal tree, *Pisonia brunoniana* is associated with a fig, *Ficus platypoda* (which grows mostly where coral rock predominates) and with two trees of smaller growth, *Celtis paniculata*, finely foliaged green tree, and *Pipturus argenteus*. Most of the nests were on the *Pisonia*, though the fig was largely utilised and the third tree to a lesser extent.

The *Pisonia* and figs grew to a height of 40 or 50 feet, and afforded a welcome shade from the sun and shelter from the wind. The nests of the Noddies were placed at varying heights, from three feet to thirty or more, though most of them were from 15 to 20 feet, where they obtained the maximum amount of shade and shelter. Some branches were crowded with nests and on one tree Mr. Gilbert and I counted 143 occupied nests. Going through the forest one found tree after tree laden with nests and the birds everywhere flying in or out, or busily engaged courting, mating, nest-building, incubating, or feeding newly hatched young birds. At all times in this forest one heard the conversational note of the Noddy, which may be likened to the chirping bark of a small tree frog.

This bird has notes for other occasions. When courting, the male sidles along a branch towards the female of his choice, bobbing his head slightly and uttering "Kedrutt, kedrutt, kedrutt, urrutt, urrutt." He then comes alongside and begins to caress her with his beak, over head and neck and beak to beak. The female makes a rattling, guttural response, meanwhile bobbing her head up and down with widely open beak. The male then proceeds to feed her, she taking the fish which he regurgitates by putting her beak across his widely open gape. After this mating is completed and nest-building commences. A site is chosen after several inspections and consultations have been held. The ground is searched for yellowed and faded *Pisonia* leaves and a foundation made by folding these limp leaves over a limb, where they are arranged with the beak and trampled down with the feet. Green or dry leaves being of no use for the purpose, as they are not pliant enough, it necessarily follows, when so many birds are building, that leaves of the right kind become scarce. Accordingly, there is quite a rush for one when it flutters to the ground. The fortunate bird carries it in triumph to the nesting site, and after arranging it is fortunate again in not having it stolen so soon as he or she goes for another. I watched this take place several times. These leaves are stuck together by being mixed with seaweed from the beach or the sticky seeding heads of the *Pisonia* and consolidated occasionally with grass from the marginal zone, and the whole is thus built up and cemented into a solid mass with the birds' excrement.

These nests measure on an average six to eight inches from top to bottom, five to six inches across the top, with an egg cavity 1½ inches in depth. One

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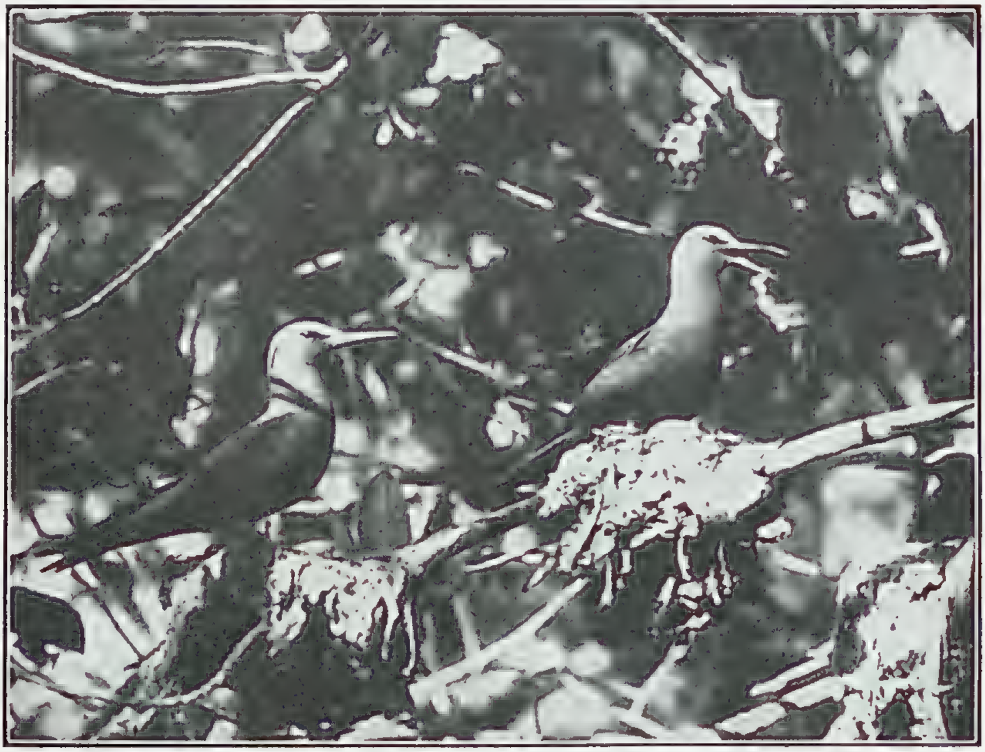
SILVER GULL STANDING OVER EGGS, NORTH WEST ISLAND.
Photo. by P. A. Gilbert.



SECTION OF NESTING WHITE-CAPPED NODDIES.
Photo. by W. MacGillivray.

egg only is laid. The male and female share the task of incubation. The male feeds the female on the nest and is very attentive. He sits by the nest, and when he thinks she has done a long enough shift he sidles up and very gently and politely pushes her off and quickly takes her place on egg or nestling. This may be seen going on at any time of the day.

Numbers of Noddies that have been out at sea during the day come in to roost just before dark, and there is an exodus at about 4.30 a.m. to 5 a.m. after the last of the Petrels have left the island. Unlike the latter birds, which go right out to sea, the Noddies fly out over the trees and hawk up and down over the shallow water for a time before going out. In the evening, when these two species come in, the reverse occurs.

The gathering of the seeding heads of *Pisonia* or flying through a seeding tree is not without its dangers, as we found several birds on the ground in the forest, or along the beach, rendered helpless by the seeding heads adhering to their flight and other feathers.

When we first examined the nests nearly all contained an egg and very few had hatched out. As our time on the island went on, more and more egg shells were to be seen beneath the trees and more young birds in the nests. When hatched, the young one is covered with black down, the crown only being white, legs and bill dark slate and irides brown.

Small fish are principally captured by the birds. I saw one bird throw up the contents of its crop. These I secured and counted 50 small fish, each from 1 in. to 1½ in. in length. Submitted to Mr. Whitley, they proved to be of the genus *Atherina.*

Silver Gull (*Larus novae-hollandiae*).—Several pairs of this Gull were nesting near our camp in the grass and herbage under the shrubs of the outer zone of vegetation, and odd pairs round about the island. We found many more nesting on Tryon Island. The nests were composed mostly of the grass *Sporobolus virginicus* (which grew freely on the outer zone on all the islands) and measured eight inches in external width, with a nesting cavity of two and a half inches deep. The eggs were either three or two in number, and a few nests contained downy youngsters. These leave the nest on the second day after hatching and hide in the herbage, just as is the habit of their near relations, the Terns and Plovers.

Pomarine Skua (*Stercorarius pomarinus*).—A Skua, presumably this one, flew leisurely across our bow when on our way out from Gladstone.*

Turnstone (*Arenaria interpres*).—A well-named bird. We frequently watched numbers feeding along the waters edge on North West, Wilson and Tryon Islands. They were usually in parties of from four to eight, busily occupied along the waters edge in turning over lumps of coral or coral rock for the animal life hiding underneath. This is done very deftly. Coming up to a stone, sometimes three or four inches in diameter, the small, straight beak is put under it and the stone rolled over with a quick forward and upper movement of head and bill.

Pied Oyster-catcher. (*Haematopus ostralegus*).—Five of these birds were on the shore at Gladstone on the morning after our arrival. On North West Island there were always two or three along the waters edge and on Wilson Island we saw a pair on the shingle. No nests were found.

Black Oyster-catcher (*Haematopus unicolor*).—Three of this species were on the foreshore of Tryon Island when we visited it.

Grey Plover (*Squatarola squatarola*).—This species was noted on several occasions feeding along the shore of North West Island, in company with other waders.

Lesser Golden Plover (*Pluvialis dominicus*).—Quite common on all three islands and often in numbers.

Large Sand Dotterel (*Charadrius leschenaultii*).—Several of these birds were seen at different times on the shore of North West Islet.

Red-capped Dotterel (*Charadrius ruficapillus*).—This widely distributed Australian species was in flocks on the foreshore at Gladstone, but I did not see it on the islands.

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*There appears to be only one definite record of this Skua for Australia.—Editor.

Black-fronted Dotterel (*Charadrius melanops*).—Seen also in and about Gladstone, but not on the islands.

Eastern Curlew (*Numenius cyanopus*).—This species was also on the shore at Gladstone.

Whimbrel (*Numenius phaeopus*).—Seen on several occasions on North West Island.

Little Whimbrel (*Mesoscolopax minutus*).—Also on the shore at North West Island.

Bar-tailed Godwit (*Limosa lapponica*).—Always two or more on the shore of North West Island, probing the shallows with their long parti-colored bills. Also on Tryon Island.

Long-tailed Tattler (*Tringa brevipes*).—Also identified on North West Island on several occasions.

Sharp-tailed Stint (*Erolia acuminata*).—Seen on the shore at Gladstone feeding amongst old mangrove stumps, and occasionally on North West Island.

White-faced Heron (*Notophoyx novae-hollandiae*).—Odd specimens seen on North West Island and one on Wilson Island.

Reef Heron (*Demigretta sacra*).—A common bird on all the islands, the white phase being in the proportion of ten to one of the grey. The morning after our landing we found several nests in the bushes about our camping site. One nest, containing two well feathered young birds, both white with white parents, was about 12 ft. up in a *Tournefortia*, between our dining fly and the tents of two of the ladies. The parent birds tended the young throughout our stay on the island, and often fed the young when we were having a meal and the camp was comparatively quiet. Many photographs were taken of this family party. Another at about the same height was curtained from the sun by a fairly thick growth of *Cassytha filiformis*. This nest contained three fresh eggs and was deserted by the parents after our advent, as were other nests containing eggs near our camp. All the parent birds of this group were white. Another nest on the western side of the island, placed in a fig tree just inland from the shore, contained when Mr. Gilbert first found it, one newly hatched nestling and a second just emerging from the shell. When I saw them a day later both were covered with dusky grey down, growing from the head back numeral and femoral pterylae. Legs, feet, and bare skin olive yellow; beak dark olive; gape dull yellow; irides brown; eyes open when hatched. The parent birds were a white and a grey bird. Another nest, found later by Miss Geissmann, was being constructed by a white and a grey bird. I found a grey youngster beside its nest in a *Celtis paniculata*, with a white and a grey pair on the shore near by.

These birds nest in all kinds of trees, usually, however, in well concealed and well-sheltered situations. On Tryon Islet I found a white bird sitting on a nest in an upright fork of a slender *Pisonia*, at about 15 feet from the ground, and another in a *Scaevola* only three feet from the ground; two eggs were on the ground under this one, punctured and empty. This nest, like others of this species, was substantially built of sticks and measured 12 inches in width by six inches in depth.

The birds were quite plentiful on all the islands and could be seen searching the reef for food whenever the tide was out and the coral exposed.

Black Bittern (*Dupetor flavicollis*).—I saw one of these birds on one occasion only on North West Island.

Black Swan (*Chenopis atrata*).—A pair of these birds were on the foreshore at Gladstone on the day of our departure for the Island.

White-breasted Sea Eagle (*Haliaetus leucogaster*).—Two nests of this fine bird were found on North West Island, both well up in *Pisonia* trees One near the south-eastern end contained a pair of well-feathered young birds. It was 40 feet from the ground in the branching top of the tree. Mr. Gilbert climbed to it with his camera and photographed the birds. The nest was four feet in external diameter, two feet three inches in depth, with a nesting cavity four

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REEF HERON APPROACHING NEST AND YOUNG.

NESTING AREA OF BLACK-NAPED TERNS.

Photos. by P. A. Gilbert.

inches deep. It was constructed of *Pisonia* sticks and other twigs. The egg cavity was lined with *Pandanus* leaves, beach grass (*Thuarea sarmentosa*) and *Tournefortia* tufts. A quantity of feathers, the remains of several Wedge-tailed Petrels, and the bones of fish were on the nest. The young birds were infested with lice and the nest full of the larvae of meat beetles. The young birds were colored thus :—Light brown on the head ; back, blackish brown ; primaries, still in sheaths at their bases ; abdominal feathers, brown with light brown tips ; tarsus not feathered and dull white ; tibio tarsus covered with white down ; feet, dull white ; nails and beak, black ; irides, dark brown. Two adult birds in grey and white livery attended the young in the nest. The other nest was not occupied.

Two immature birds in brown dress were frequently seen on the western side of the island, where they were feeding on a dead turtle. Two adults and two immature birds were on Wilson Islet when we visited it, but no nest was seen. On Tryon Island one adult bird was seen soaring over the trees, but it soon left.

Red-backed Sea Eagle (*Haliastur indus*).—Seen at Gladstone contentedly perched on a stump inside the water line, leaving active fishing to an Osprey.

Osprey (*Pandion haliaetus*).—At Gladstone I watched one of these birds for some time patrolling the shore line, and occasionally plunging into the water in an endeavour, not always successful, to capture surface-swimming fish. The bird could rise out of the water quite easily, giving his plumage a shake when a few feet above the surface.

Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*).—Noticed flying close overhead during our first afternoon's walk in Gladstone.

Forest Kingfisher (*Halcyon macleayi*).—Seen in Gladstone.

Sacred Kingfisher (*Halcyon sanctus*).—Noted first in Gladstone. Two or three pairs were on North West Island and two nesting holes were observed. The first found was drilled into a *Pisonia* overlooking the beach ; it contained young birds. The parents seemed to find most of their food on a rocky reef right in front of the nesting site ; the reef was uncovered at every low tide, leaving much marine life stranded or hiding in the rock crevices. The other nesting hollow was found, a few days before we left, drilled into a broken-off end of a *Pisonia* limb at about six feet from the ground. This nest contained four fresh eggs ; the owners of this nest also were often seen on a nearby mass of consolidated coral rock. They, too, fed largely on immature grasshoppers that were doing a lot of damage to the shrubs on North West Island ; but the birds were not in sufficient numbers to check their ravages.

This species was also found on Wilson Island. On Tryon Island, a much smaller islet, there were three pairs and one nesting hollow was found, seven feet up in a *Pisonia* ; it contained fully fledged young birds.

Both on Wilson and Tryon Islands the vegetation is in much better condition than on North West Island. This is possibly due to the much larger proportion of land birds, especially of these Kingfishers, keeping the insects in check.

Welcome Swallows (*Hirundo neoxena*).—Seen at Gladstone.

Tree Swallow (*Hylochelidon nigricans*).—Noticed in Gladstone.

Rufous-breasted Whistler (*Pachycephala rufiventris*).—Seen and heard about Gladstone.

Magpie-lark (*Grallina cyanoleuca*).—Noted in Gladstone.

Little Cuckoo-shrike (*Graucalus robustus*).—On the outskirts of Gladstone.

White-shouldered Caterpillar-eater (*Lalage tricolor*).—One specimen, a male, seen in the *Casuarina* trees on Wilson Island.

Southern Fig-bird (*Sphecotheres vieilloti*).—Several seen in Gladstone.

White-throated Warb'er (*Gerygone olivacea*).—Noted on the outskirts of Gladstone.

Mangrove Warbler (*Gerygone cantator*).—Noted by Mr. Gilbert in the mangroves at Gladstone.

Brown Weebill (*Smicrornis brevirostris*).—A small flock noticed in gums on the outskirts of Gladstone.

White-breasted Wood-swallow (*Artamus leucorhynchus*) .—Noticed at Gladstone.

Dusky Wood-swallow (*Artamus cyanopterus*).—Also at Gladstone.

Black-headed Pardalote (*Pardalotus melanocephalus*).—In the gums (*E. citriodora*) in and about Gladstone.

Grey-breasted Silvereye (*Zosterops lateralis*).—This bird was described by Campbell and White after the 1910 camp-out as a new species at a time when everyone seemed bent upon elevating to specific rank any bird showing minor differences in plumage or size. However, wiser counsels have prevailed since then. The Capricorn Islands being now sanctuary for bird life no specimens were taken by our party, so that we cannot confirm any differences of measurement. The birds we found to be very common on all three islands visited. A pair had a nest in the midst of our camp and were constantly under observation at close range, as were many more of the birds as they were feeding on the ripened berries of *Tournefortia* and smaller insect forms. Mr. Gilbert, who is well acquainted with the birds in and about Sydney, could perceive no difference in form, habits, coloration or note between it and the island bird, and from what I could see of it I thought it much more nearly allied to the southern forms than to the North Queensland sub-species, *Z. lateralis vegeta.*

Mangrove Honeyeater (*Meliphaga fasciogularis*).—A Honeyeater was frequently seen and heard calling from the tops of trees in Gladstone, but being a restless creature it did not give one much opportunity of examining it with the glasses. Mr. Gilbert, however, obtained a near view of one or more in the mangroves and identified the species.

Pipit (*Anthus australis*).—On open spaces in Gladstone.

Crow (*Corvus cecilae*).—Frequently heard in and about Gladstone and noticed exploring the forshore when the tide was out.

Pied Currawong (*Strepera graculina*).—Several pairs found a living on North West Island but there was none on Wilson nor on Tyron Islands. Both Miss Geissmann and Mr. Gilbert agreed that the note of the island bird differs markedly from that of the mainland bird, with which both of them are very familiar. To all appearances the bird is identical with the mainland bird, but no skins were taken nor bird handled. Two nests were found, both occupied by nearly fully-fledged young.

Bird Protection in Queensland.—That energetic conservation society, the Central Queensland Native Birds Protection Association, appears to have been receiving rather less than " a fair deal " from the police magistrate in Rockhampton recently. In one case reported, a man who was convicted of wilfully killing a Magpie-lark, one of our most valuable birds, was fined the absurd sum of one shilling, and the association was forced to pay its own professional costs. In another case a person was convicted of shooting in a bird sanctuary, for which the minimum fine is £2, and the magistrate is reported to have endeavoured to have the fine reduced under the Justices Act. The association has made a public protest against such actions as these, which are in strong contrast to the attitude taken up by the previous magistrates in Rockhampton, and it is hoped that in future cases the punishment will fit the crime.

The Birds of Port Phillip.

(PART I.)

BY ROBERT HALL, F.L.S., C.M.Z.S., Hobart.

THE outer suburbs of Melbourne have three types of birds, due to an equal number of different physical features and with three distinctly peculiar feeding grounds. They are not small affairs. That of the South brings in the species of the Southern Ocean; the eastern fringe gives us the northern Bassian forms, while that of the west provides Eyrean or plain birds.

Port Phillip is altogether a changed condition from its former self. Then it was a land surface with the Saltwater River, Dandenong Creek and Little River coursing through it. That meant the birds of the Bassian sub-region in the direction of the old bed of the Woori Yalloak were given free access to the Otway Forest, which contains many interesting remnants of the bird fauna of that day. Troubles accumulated when Mt. Macedon erupted its lava over the Silurian forest west of Melbourne, to form a basaltic plain.

After that, Melbourne as we know it now had its bird fauna clearly divided by receiving Eyrean birds and displacing Bassian. In other words, the dry country species of the north-west of Victoria came closer in to the Melbourne basin with the opportunity of a new feeding ground in a rich basaltic treeless surface. It had shallow catchments to hold the fresh water crustacean life that also came along. Food was provided by an entirely new vegetation on and adjacent the plains we know as Keilor and Werribee, with others just beyond. The mallee eucalypt came on to the edge of the western plateau. This encouraged the birds of the mallee and continues to do so, as is easily seen, *e.g.*, at Melton. Though these western birds came nearer to Melbourne they were originally the offspring of the the western stock. In viewing that nearest granitic area to Melbourne, and one isolated from the lava bed, another type of vegetation found ground suitable to itself, the red gum (*Eucalyptus rostrata*) growing fine and beautiful. Casuarinas, with their natural love of rocks, arrived as well. Sections of the lava overlying the Silurian rocks are seen in fine scale in the Merri Creek at Coburg.

On the eastern or Silurian side of Melbourne most handsome black wattles (*Acacia mollissima*) occupy the richer feeding grounds while the stringy-bark (*Eucalyptus obliqua*) covers the poorer ground. Fortunately for the honey-eating birds of the future, the forests of stringy-bark are self-supporting. They naturally supply their own nurseries and keep up the supply of trees from flower food. The axeman or his fire may devastate one forest for a period but it will arise again on its own initiative, and later, in every second year, allow the birds to harvest their crops. In northern Tasmania the stringy-bark is a fine furniture wood, resembling the English oak, and finds serious inroads into its forests every year.

The features about Melbourne are :

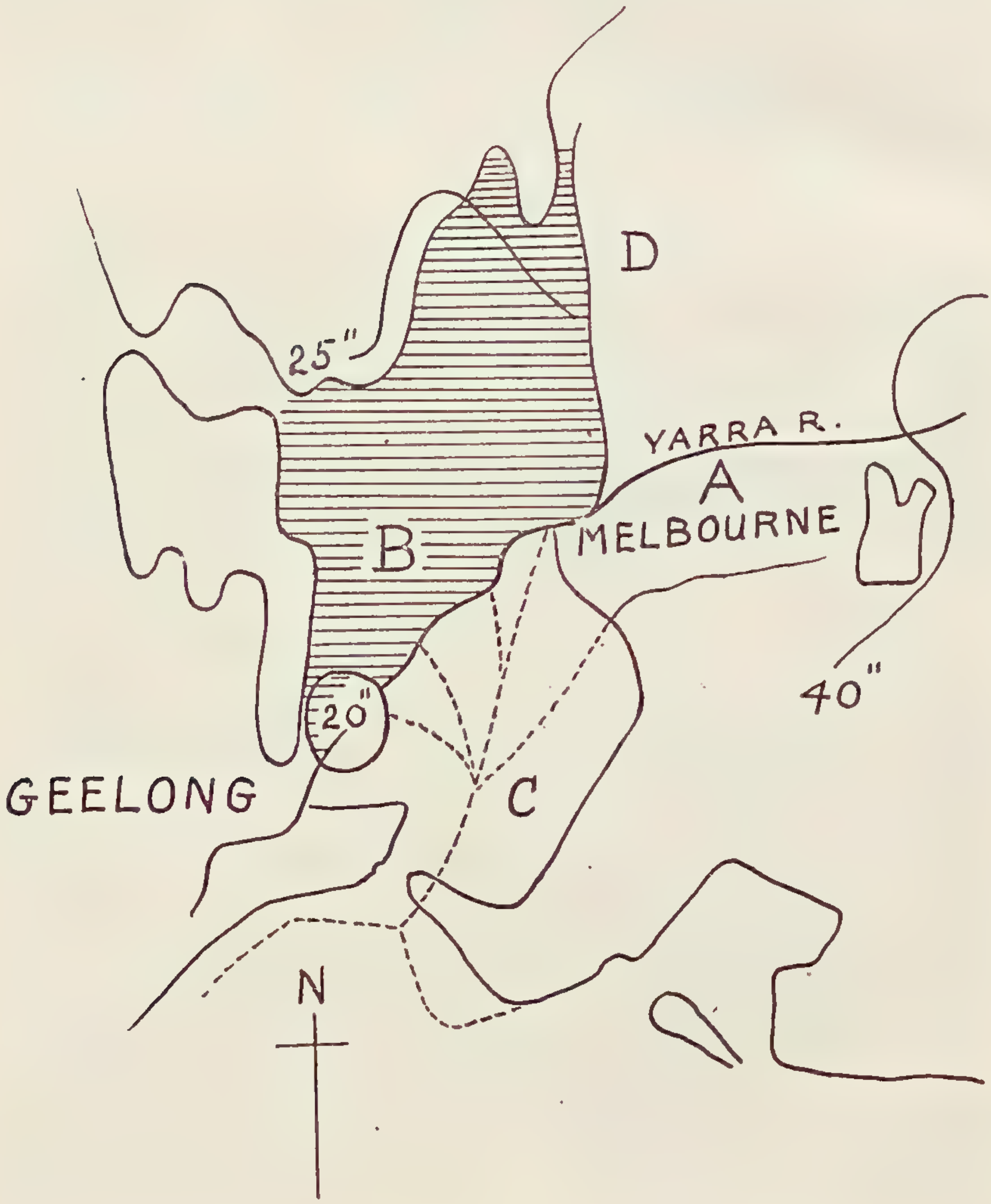
a. The Silurian ridge, bounded on the east by the middle Yarra basin (Woori Yalloak).

b. The basaltic plains westward to the Ballarat plateau and south westward to Geelong.

c. The Great Valley of Victoria, in particular that portion of it with its old rivers the Saltwater, Dandenong and Werribee, all betrunked or drowned.

d. The Plenty Range to Melbourne along the Plenty River, being the boundary of the lava flow on its eastern edge.

These features are indicated by A, B, C, D, in the accompanying map. Looking from the surrounding suburbs of Melbourne one expects and finds the birds to have opposing characters : of three types.



In A, the Silurian, among such creeks as Olinda, the Yellow Robin (*Eopsaltria australis*) is perhaps the most numerous species. Such a form in feathers would be out of place on the basaltic plains. Centuries have given it habit and food not compatible with life on the plains. It loves the hazel (*Pomaderris*) and sassafras (*Atherosperma*). In the Fern-thrush ((*Oreocincla lunulata*) we have another type of life preferring and insisting on living in such country, where grow the musk (*Aster*) and blackwood (*Acacia melanoxylon*). These again need humid, densely-wooded gullies. As a third type we may take the Whip-bird (*Psophodes olivaceus*) a bird found mostly in residence within the *Melaleuca* scrub. Other birds as the Lyre-bird (*Menura novaehollandiae*) and the Helmeted Honeyeater (*Meliphaga leadbeateri*) are purely eastern and do not extend to the western gullies, *e.g.*, the Grampians, by skipping or skirting the plains, as some birds do, *e.g.*, Yellow Robin.

In B, the newer lava plains, we mostly find the Banded Plover (*Zonifer tricolor*) and rarely the Plain Turkey (*Eupodotis australis*) or the Plain Wanderer (*Pedionomus torquatus*).

In C, a submerged district showing dead blackwood (*Acacia*) in its mud to indicate its past, and Myoporums along its margins to indicate its present, we have Red-capped Dotterels (*Charadrius ruficapillus*), White-faced Storm Petrels (*Pelagodroma marina*) and White-capped Albatrosses (*Diomedea cauta*). The seagrass *Halophila* provides food for Godwits (*Limosa*).

In D, the open or lightly timbered, birds interchange between A and B.

A large number of the birds of the Basaltic plains, B, and the Silurian tract, A, are common to each other, but each side of Melbourne has its own distinctive types, which are representative of a thousand miles of country north-east and north-west of Melbourne. To the south the life of the bay may be found cruising a thousand miles away.

The junction of A, B, C, on a radius of twenty miles is the meeting ground of three characteristic Australian faunas : A, the Bassian, moist country ; B, the Eyrean tract, dry country ; C, a bay and ocean fauna.

One should not expect at any time of the day to meet with some or all of the leading types, but they are there.

In certain seasons the wooded portions of the plains, B, are visited by north-western birds such as the White-winged Chough (*Corcorax melanorhamphus*) Crested Bell-bird (*Oreoica gutturalis*), and Grey Jumper (*Struthidea cinerea*), genera that would not dream of penetrating far into A. They will stay and nest.

In addition, we have in B irregular migration, even a sporadic immigration, as with the Grass Owl (*Tyto longimembris*) and Masked Wood-swallow (*Artamus personatus*). This depends on the mouse and grass-hopper plagues. Nomadic birds, as Quails, pass to and fro.

With C, in a year like 1919-20, the sporadic immigration of Cormorants is most marked, with several thousands, not nesting. Terns come annually unless a failure of fish-migration sets in.

On the plains between Werribee and Geelong the annual average rainfall is 20″, while that of the Dandenong Range is 40″, and all the country immediately beyond 50″. This tends to different vegetation and helps to decide which species of birds will live in the east of Port Phillip and which in the west, giving us zoological sub-regions.

One is safe in putting down the following seven birds separately as characteristic of A, B, C, and the genera common to D, as under :

A. Powerful Owl (*Ninox strenua*).
Whip-bird (*Psophodes olivaceus*),
Bell-miner (*Manorhina melanophrys*),
Lyre-bird (*Menura novae-hollandiae*),
Helmeted Honeyeater (*Meliphaga leadbeateri*),
Crimson Parrot (*Platycercus elegans*),
Pilot-bird (*Pycnoptilus floccosus*).

B. Plain-wanderer (*Pedionomus torquatus*),
Bustard (*Eupodotis australis*),
Regent Honeyeater (*Zanthomiza phrygia*),
Striped Honeyeater (*Plectorhyncha lanceolata*),
Grass Parrot (*Neophema elegans*),
Grass Owl (*Tyto longimembris*),
Banded Stilt (*Cladorhynchus leucocephalus*).

C. Black-tailed Godwit (*Limosa limosa*),
Little Penguin (*Eudyptula minor*),
Redcapped Dotterel (*Charadius ruficapillus*),
Gannet (*Sula serrator*),
Crested Tern (*Sterna bergii*),
Silver Gull (*Larus novae-hollandiae*),
Pacific Gull (*Gabianus pacificus*).

D. Black-and-white Fantail (*Rhipidura leucophrys*).
Blue Wren (*Malurus cyaneus*),
Red Wattle-bird (*Anthochæra carunculata*),
Rosella (*Platycercus eximius*),
Kookaburra (*Dacelo gigas*),
Pipit (*Anthus australia*),
Welcome Swallow (*Hirundo neoxena*).

The Port Phillip birds, apart from their distribution, are more than interesting. The smaller part is easily seen, while the larger engages in its daily round in the quiet of the closer timber. A few are solitary, and friendly when properly approached. Geographically, we find no end of feather variation, just as we see changes in their ways according to location. The Magpie and Butcher-bird, considered by some naturalists as one and the same genus, have their likenesses, the latter being a replica of the former. One hops, the other runs. The mind of the Butcher-bird (*Cracticus*) is more wicked, though the bird is brave. I am thinking of the many young birds it deliberately drags from their nests and if too large to drag away, it will, under the eyes of the parents, just tear them to pieces. As an onlooker I often feel that grubs and smaller game would better suit the purpose of civilisation, as these young are the offspring of insectivorous birds. The Grey Thrush (*Colluricincla*) is such another bird, more uniformly clad in grey. I am remembering a hedge with six nests, each filled with young Gold-finches. Up and down the length of that hedge this grey bird flew and flew with a guilty eye. In that week all young disappeared.

The Butcher-bird and the Magpie appear to have a truce. So long as the former leaves alone the young of the latter it gets a free hand.

The Port Phillip Cuckoos sacrifice the young of birds in another way without the question of food. Crows are not quite so sneaky in their killing, while Hawks are better sports.

There are the interesting silent birds ; those of the timber of the outer suburbs. Take, for example, the Speckled Warbler (*Chthonicola*), of Ringwood district. It is content to live its life in the quiet of the bush—the "jungle peace"—keeping to the ground, nesting and feeding there in full content. It is the unusual owner of chocolate coloured eggs, carefully hidden in a dome-shaped nest upon, or partly hidden within, the ground. A bird of a still rarer type that comes into the eastern suburbs only, and that occasionally, is the Helmeted Honeyeater (*Meliphaga leadbeateri*). Both the Speckled Warbler and the Helmeted Honeyeater have limited distribution, keeping only to the country marked A in map. The Warbler traverses the littoral from South Australia to South Queensland, while the Honeyeater is in that part of A, south-east of Melbourne, in Victoria.

Of all these birds the voice of the Butcher-bird is best in the open and light of day, while that of the Grey Thrush is the finest in the early morning and in the close. The Butcher-bird is contralto, uncommon amongst birds. In chorus the Magpie is the best. The most human vocal touch we find in the Noisy Miner (*Myzantha garrula*) when he sits back and just says he wants badly to talk to somebody, the request lasting a minute or two. It reminds me of the Indian Grackle. Our Pipit has little to say for itself, musically, but the *Mirafra* or Bush Lark, so much like it in the field, has a wonderful voice, hovering and singing at midnight well in the heavens if the moon is good. It is fairly numerous in suitable country having long grass or corn.

Two of the rarer species are the Pilot-bird (*Pycnoptilus*) and Bristle-bird (*Dasyornis*). The first comes in from the close forest to the outer margin of the eastern suburbs, the second to the suburbs of Geelong on the opposite side. Though not to be classed as musical they have distinctive voices. The *Pycnoptilus* calls " Guinea-a-week ; " the *Dasyornis* is likened to the working of a cart-wheel, being locally known as the " Cartwheel-bird." Both keep to the inner temple of the forest, where few sounds are heard and where few species or birds frequent. Their home is the land of planarian worm and excess of rain.

Associated with the Pilot-bird we find the Lyre-bird (*Menura novæ-hollandiæ*). If not a song bird, it is by inheritance a remarkable mimic.* In the same dense timber we find the Whip-bird (*Psophodes olivaceus*) with a powerful crack resounding within the forest. In the sweeter areas of the same heavy scrub we can hear, more sweetly and more gently, the voice of the Golden Whistler (*Pachycephala pectoralis*). It is the minor whip-crack. In the similar country of the Dandenongs in A, but in the higher branches, the running and ringing note of the Bell-miner (*Melanorhina melanophrys*) is heard.

On the Basaltic side of Melbourne, B, we find wading in the shallow swamps the Banded Stilt, a handsome bird with a bugle-like call. About these same swamps in the night one may hear the weird " We-loo " of the Southern Stone-plover (*Burhinus magnirostris*) or the crackle of the Spurwing (*Lobibyx novæ-hollandiæ*). These are the voices of the moonlight or the dark. In the same dark hours, strangely enough, one hears the calling of the Black-and-white Fan-tail (*Rhipidura leucophrys*), the " Sweet-pretty-creature " so well-known to every country child. Over the same plains in the summer day the Raven (*Corvus coronoides*) sounds the call of the scavenger ; discordant surely ! It is a voice gone to pieces. If the *Mirafra* is the gentle bird that sweetly sings at Heaven's gate, we find the larger Song-lark of the genus *Cinclorhamphus* has a correspondingly stronger voice ; a day song.

The Brown Song-lark ascends and continuously calls " Pitch-a-paddle, pitch-a-paddle," described by A. J. Campbell forty years ago.

Port Phillip is not empty of native songs and poets might well be full of their wonder ; alteration by reason of geographical range and local condition. This is a study we might well, with every faith, leave to the student of the field, the man of leisure with the hearing ear, the seeing eye and the understanding mind.

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*Is the Lyre-bird (or any other bird), really a mimic "by inheritance"? This is a point that could be discussed with profit.—EDITOR.

Notes on a Visit to North Queensland.

By W. B. Alexander, M.A., C.F.A.O.U.

On August 18, 1925, I left Brisbane on the S.S. Levuka for a holiday in the Cairns district. The first port of call was Mackay, where I spent the day with Mr. E. M. Cornwall, R.A.O.U., who kindly took me for a drive in the bush. While the steamer was in Townsville I made an excursion to Magnetic Island, a fairly large, mountainous island only a few miles from the coast. Cairns was reached on Aug. 23 and was my headquarters for three weeks. During the first two of these a railway strike was in progress so that it was only possible to make excursions by sea. Aug. 25-27 were spent with members of the Great Barrier Reef Committee on the launch of Dr. P. Clarke, of Cairns, who kindly took us to Fitzroy Island, a mountainous island a few miles from the coast, and also to all the islets and banks on the Barrier Reef within reach of Cairns. Of these the largest and the nearest to the coast is Green Island, which is wooded; all the others are mere sand banks with some grass and stunted bushes upon some of them, the most interesting to the ornithologist being Oyster Cay, on which a great colony of Sooty Terns were nesting. I paid a second visit to this islet the following week with Mr. E. Turnbull, the Commonwealth Cinema Director, when films of the birds and of life on the Barrier Reef were obtained.

Through the kindness of the Superintendent, Mr. McCullough, I was enabled to spend two week-ends at the Yarrabah Aboriginal Mission, situated in Mission Bay, the next inlet to the south of Trinity Bay on which Cairns is situated. At Cairns my attention was devoted chiefly to the wading birds, which were in numbers on the muddy foreshore at low tide. Many of them had not altogether lost their breeding plumage, indicating that they had only recently arrived from the Northern Hemisphere.

Finally, after the termination of the strike, I spent three days at Kuranda, a township in the mountains on the Barron River just above the famous falls. Here I obtained much interesting information about the local birds from Mr. F. P. Dodd, the well-known entomologist.

I returned south by the S.S. Wyreema, calling at the same two ports, but our stay at Mackay was too short for another visit ashore. During our stay at Townsville I again paid a visit to Magnetic Island. Brisbane was reached on Sept. 18.

So many ornithological collectors have visited North Queensland that the birds found in such accessible places as those I visited are of course well-known. I had not expected it would be worth while to place my observations on record, but on looking up literature since my return I find that published notes deal very largely with the nesting habits of the birds. As far as I could judge, the land birds were not nesting at the time of my visit; at any rate I did not discover a single nest, though a few species were building and some were accompanied by young. My notes, therefore, relate almost entirely to the comparative abundance or rarity of the birds in different localities and to their habits and songs. I think they will be found to add a little to our knowledge of certain species.

As most of my notes relate to Kuranda and Yarrabah, brief descriptions of these localities may be useful. The country about Kuranda is hilly and mostly covered with dense tropical scrub or jungle. Amidst the scrubs there are also areas of open eucalyptus forests, with narrow belts of jungle fringing the creeks. The aboriginal reserve at Yarrabah largely consists of steep granite hills covered with rather stunted trees, with scrub trees in the beds of the small torrents. There are larger patches of scrub on the lower slopes of some of the hills and belts of scrub along the water-courses where these flow over the lower country. Near the coast there are some large swamps, in which scrub trees are mingled with tea trees and pandanus. The coast is steep and rocky where the granite hills run into the sea, but in other parts is fringed with a belt of mangroves.

On this journey I made the acquaintance of 19 species that I had not seen before in a wild state. The total number of species seen by me in Australia is now 433 and the total identified in all parts of the world over a thousand.

Cassowary (*Casuarius casuarius*). A tame bird seen at Yarrabah was obtained as a chick in the adjacent scrubs just two years ago. It is nearly full-grown but its plumage is still brown and the wattles on the fore-neck are only indicated by a raised pink line. It is said to feed readily on rats, mice, frogs, etc., as well as fruit, and to be specially fond of fish. It likes bathing in fresh water in summer but does not enter the sea.

Quail.—At Yarrabah on Aug. 30 two Quail were seen on a flat covered with blady grass. The first was running along a track and appeared very small and dark in colour, with lighter markings. I think it was a female King Quail (*Excalfactoria chinensis*). The second, which flew from amongst the grass and soon settled again, was also small but appeared to be much lighter in colour. I think it was a Little Quail (*Turnix velox*).

Red-crowned Pigeon (*Ptilonopus regina*). Only one of these birds was seen, at Yarrabah on Aug. 30, but the cooing notes which I believe to be those of this species were constantly heard at Yarrabah and frequently also at Kuranda. I also heard them in the trees at Green Island.

Purple-breasted Pigeon (*Megaloprepia magnifica*). Several of these fine birds were seen in the scrubs at Kuranda, and their loud call of "Woo-oom-poo," the first two syllables uttered with a bubbling quaver, were constantly heard there.

Torres Strait Pigeon (*Myristicivora spilorrhoa*). Small flights of these birds were seen passing south along the coast at Cairns. The first party I saw was on Sept. 2, but I was informed that a flight had been seen at Yarrabah the previous week. On Sept. 4 two more flocks were seen, and on Sept. 8 I saw quite half-a-dozen small flights. These parties comprised from half-a-dozen to twenty individuals and the flight of each flock was almost exactly on the same line, showing that they were following a regular migration route. This was across the waters of Trinity Inlet, leaving the coast just north of Cairns and crossing the inlet to a point on its southern shore. Instead of coasting round the peninsula formed by False Cape and Cape Grafton, the Pigeons evidently cut across the ranges at its base and reach the coast on the other side. As they fly quite low over the water, and when they reach land fly close over the tree tops, it is clear that they cannot see the coast further to the south, as the hills on the peninsula are 2,000 feet high. Evidently they are guided by memory or instinct in following this route.

Pheasant Pigeon (*Macropygia phasianella*). A few of these birds were seen in the scrubs at Kuranda, where their characteristic coo was frequently heard.

Bar-shouldered Dove (*Geopelia humeralis*). These were fairly common near the coast and were seen at Mackay, Magnetic Island, Yarrabah and Cairns.

Peaceful Dove (*Geopelia placida*). Very common at all the localities visted on the mainland, particularly in the streets and gardens of Cairns. Also numerous on Magnetic Island.

Green-winged Pigeon (*Chalcophaps chrysochlora*). One was seen at Yarrabah on Sept. 7.

Little Grebe (*Podiceps ruficollis*). These little birds were to be seen on most of the pools along the Barron River at Kuranda. They were all in winter plumage.

Storm-Petrel.—On Aug. 19 one was seen off Sandy Cape some distance from the ship. Probably it was a Wilson's Storm-Petrel (*Oceanites oceanicus*) as this is the locality where I saw them on a previous voyage.. Humpback whales were seen in great numbers off this part of the coast on both voyages, indicating that plankton organisms are probably specially abundant here.

Wedge-tailed Shearwater (*Puffinus pacificus*). A small party was seen off Sandy Cape on Aug. 19.

Little Pied Cormorant (*Microcarbo melanoleucus*). Several of these Shags were seen on pools in the Barron River at Kuranda. The almost complete absence of Cormorants along the coast was very noticeable. Their place seemed to be taken by Boobies. Only one or two white-breasted Cormorants were seen, and these not near enough for identification; probably they were all of this species. On one occasion at Cairns a flight of birds was seen over Trinity Inlet which appeared to be Little Black Cormorants (*Phalacrocorax ater*).

Australian Gannet (*Sula serrator*). One was seen off the coast of Fraser Island on Aug. 19.

Masked Gannet (*Sula dactylatra*). On Aug. 26, as we approached a sand-bank on Arlington Reef, a number of Boobies flew off from it, amongst which was one white Gannet which I think was of this species.

Booby (*Sula leucogaster*). These brown Gannets were first seen off Sandy Cape on Aug. 19 and were subsequently noted in small numbers at all the ports along the coast, where they were seen perched on the beacons and posts, taking the place of Cormorants. Among the coral reefs they were more numerous, being met with in twos or threes flying over the water and in larger numbers on the various sand-banks and cays. On Oyster Cay on Sept. 1 one was sleeping on the beach, with its head tucked in among the feathers of its back, in the middle of the day. It allowed us to walk up and catch it without attempting to fly away, though it pecked viciously at anything brought near it while it was being held and its photograph taken. When released it still made no effort to get away, but walked off for a short distance and went to sleep again. It did not appear to be injured or unhealthy, but having made up its mind to sleep it evidently intended to do so whatever happened.

Lesser Frigate-bird (*Fregata ariel*). A few were seen about the sand-banks on the coral reefs. At Oyster Cay one or two were generally sailing about overhead waiting to plunder the Sooty Terns. When a victim was selected the speed of the Man-of-war Bird as it pursued the unfortunate Tern through the clouds of its brethren, dodging and twisting, was an interesting sight. The whole action was so swift that it was impossible to see exactly what happened. All the Frigate-birds seen had the plumage dark except for a white patch on the breast extending on to the axillaries.

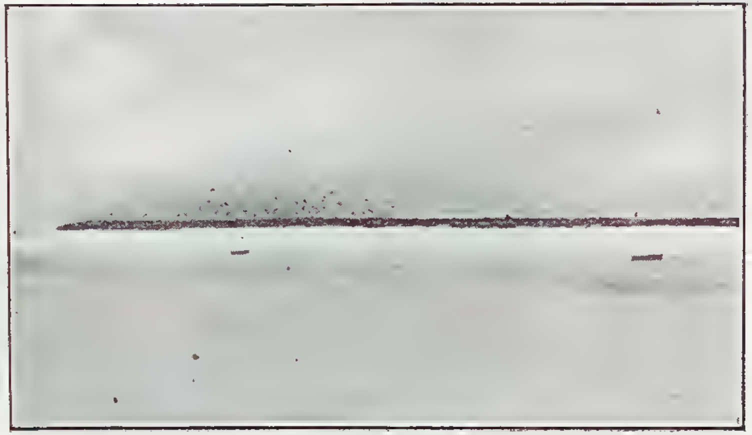
Pelican (*Pelecanus conspicillatus*). One was seen on a sand bank at the mouth of the Pioneer River at Mackay on Aug. 20.

Gull-billed Tern (*Gelochelidon nilotica*). A few birds of this species were seen about the foreshore at Cairns and Yarrabah.

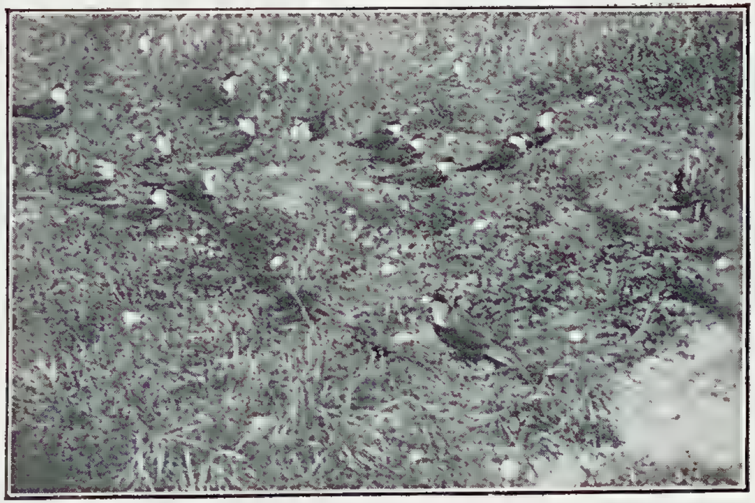
Caspian Tern (*Hydroprogne caspia*). A few were seen on the beach at Cairns.

Crested Tern (*Sterna bergii*). This Tern was seen all along the coast in small numbers. At Oyster Cay there were four nests of this species on the highest part of the bank amongst the Sooty Terns. About 10 birds were sitting on this ridge as if they belonged to the colony. Most of them had entirely black elongated feathers on the crown, but several had most of the crown white with some black feathers interspersed. Each of the four nests contained a single egg, and on Aug. 26 one of these was chipped. On Sept. 1 a second egg was chipped, and the young one from the egg hatched on Aug. 26 was quite a large chick. It showed a strong tendency to wander away from its nest while we were in the neighbourhood, and as every Sooty Tern that it passed made a peck at it I feared it would be injured. Accordingly, I held it until we were leaving the spot and then had the satisfaction of seeing its mother return to it. There was a small parrot fish, green and blue with red spots, lying beside it in the nest.

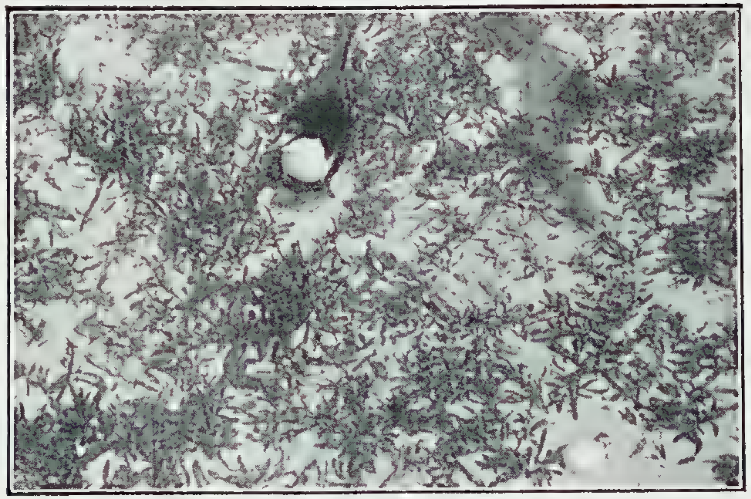
Sooty Tern (*Sterna fuscata*). As we approached Oyster Cay on Aug. 26 a dark cloud hung over it, making it look as if the island was on fire. This cloud as we drew near resolved itself into a vociferous flock of Sooty Terns disturbed by native fishermen who were collecting eggs. When we landed we found that more than half the island was covered with the nests of these birds. The nests merely consisted of depressions in the sand or in the grass each containing



OYSTER CAY.



SOOTY TERNS ON OYSTER CAY.



SOOTY TERN ON NEST WITH CHICK, OYSTER CAY.

Photos. by G. Stanley.

NATIONAL MUSEUM OF IRELAND

a single egg. At the eastern end of the island many of the eggs were chipped and there were numerous young birds a few days old, showing that the birds had begun nesting at this end and that late-comers had extended the colony to the westward. On Sept. 1 when I visited the island again many more young birds had been hatched. On this occasion some were taken to the beach to be photographed. It was unnecessary to return them as they soon found their own way back to the colony.

All the time the old birds were perpetually coming and going to and from the sea, and they continued to do so during the night. Little parties were seen fishing at various spots among the neighbouring reefs, but none were seen more than a few miles from the island. One bird dropped the heads of two small squids when it rose from its nest, but this was the only evidence I obtained as to the nature of their food.

Mr. Atkinson, of Cairns, informed me that in some seasons the colony nests on Oyster Cay, in others on Upolu Bank a few miles away, and sometimes there are nests on both these banks. Occasionally, when they have been very much disturbed on these islands they have been known to remove to Fitzroy Bank over 20 miles to the south. Native fishermen, Japanese beche-de-mer fishermen and visitors from the mainland frequently visit these banks to obtain eggs during the breeding season, and there is every reason to suppose that unless adequate protection is given the colony will ultimately be wiped out.

Noddy (*Anous stolidus*). Numbers of these birds were sitting in groups on the beach at Oyster Cay on both my visits, and others were flying about over the water among the Sooty Terns. There were no signs that this species nested on the bank.

White-capped Noddy (*Anous minutus*). One of these smaller noddies was seen among a flock of the common species on the beach at Oyster Cay. It was easily recognisable by its smaller size, proportionately longer bill, darker plumage and much whiter crown.

Silver Gull (*Larus novæ-hollandiæ*). Gulls were common at all the ports and also on some parts of the coast. A few were seen on the beaches of some of the islands visited from Cairns.

Southern Skua (*Catharacta lonnbergi*). On Aug. 19 off Sandy Cape one of these Skuas followed the ship most of the morning, flying to and fro over the stern, occasionally flying ahead and settling on the water for a time until again overtaken by the steamer. It was interesting to see a bird from the Antarctic regions at the same time as such tropical birds as Boobies.

Turnstone (*Arenaria interpres*). A pair of these waders were seen on the beach at Oyster Cay on Aug. 27, among a flock of Noddies.

Black Oystercatcher (*Haematopus unicolor*). Three were seen on the stone causeway by the mouth of the Pioneer River at Mackay on Aug. 20.

Masked Plover (*Lobibyx miles*). These were common in the swampy country to the north of the township at Mackay.

Eastern Golden Plover (*Pluvialis dominicus*). These birds were to be seen scattered over the beaches at Cairns and Yarrabah feeding at low tide, and were certainly commoner in the first week of September than they were in the last week of August, though some were seen at Cairns as early as Aug. 24. The majority were already in winter plumage, but a number still had large black patches on their breasts.

Large Sand Dotterel (*Charadrius leschenaulti*). Birds which I believe were of this species were fairly numerous on the beaches at Cairns and Yarrabah at the beginning of September ; the first was noted on Aug. 31. They were all in winter plumage.

Red-capped Dotterel (*Charadrius ruficapillus*). These little Australians were frequent on the beaches at Mackay, Cairns and Yarrabah, feeding amongst their Asiatic relatives.

Black-fronted Dotterel (*Charadrius melanops*). A few of this species were seen on the banks of the Barron River at Kuranda and some also on the beach at Cairns.

Eastern Curlew (*Numenius cyanopus*). One or two Curlews were seen at Mackay, Townsville, Cairns and Yarrabah, in each case just a solitary bird or two ; none were seen in flocks.

Whimbrel (*Numenius phaeopus*). This species was in considerable numbers on the beaches and amongst the mangroves at Cairns and Yarrabah, where it was much commoner than the Curlew.

Bar-tailed Godwit (*Limosa lapponica*). One was seen on the beach at Yarrabah on Sept. 7, feeding amongst other waders.

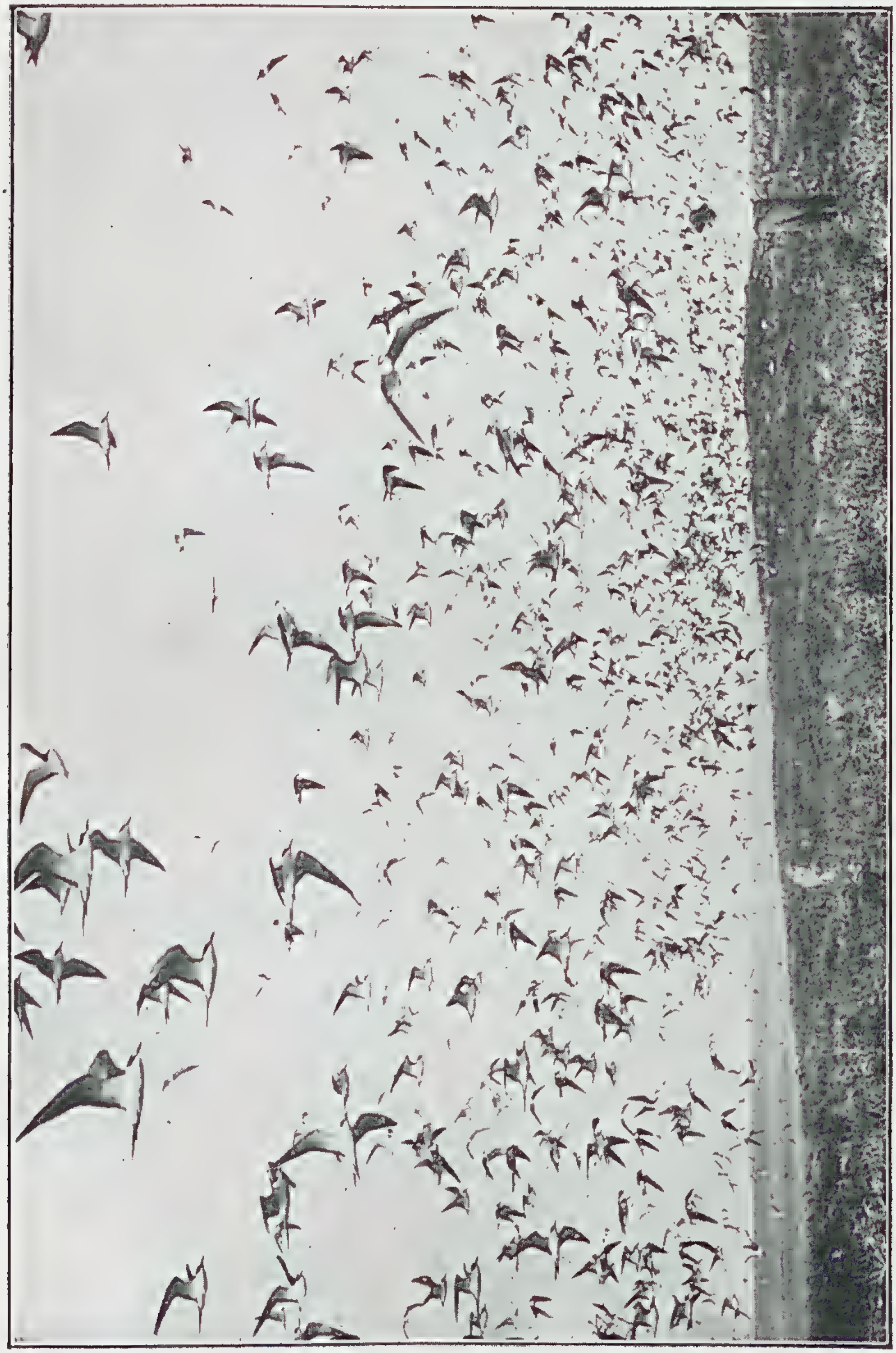
Grey-tailed Tattler (*Tringa brevipes*). This was the commonest species of Sandpiper on the beaches at Cairns and Yarrabah early in September, feeding in small parties. The first were noted on Sept. 1. They are easily recognised by their grey plumage and yellow legs, though the latter are not so brightly coloured as those of the two species known in America as Yellowlegs.

Common Sandpiper (*Tringa hypoleucus*). One was seen at Cairns on Aug. 31 running about on a raft of floating logs near the wharf, picking small objects off the wet sides of the logs, constantly jerking its tail. Its straight white superciliary stripe and the white feathers round the angle of the wing were conspicuous. What was doubtless the same individual was seen at the same place on Sept. 12.

Terek Sandpiper (*Terekia cinerea*). On Sept. 3 an individual of this species was seen on the beach at Cairns. Its short legs and long, somewhat upturned bill were quite unmistakable.

Red-necked Stint (*Erolia ruficollis*). Several little parties of these birds were seen on the beaches at Cairns and Yarrabah in September. They were first noted at Cairns on Sept. 3, and on that date one was seen which had a bright rufous patch on the upper breast. The remainder were in their dull winter plumage.

Sharp-tailed Stint (*Erolia acuminata*). Small flocks of these birds were seen on the beach at Cairns, the first being noted on Aug. 31.



SOOTY TERNS ON OYSTER CAY.

Photo. by E. F. Turnbull.

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Curlew Stint (*Erolia testacea*). One of these birds, in winter plumage, was seen on the beach at Cairns on Aug. 31. It was plunging its slightly decurved black bill deep into the mud until the feathers of the face touched the surface. On Sept. 3 a pair were seen together both of which had large patches of bright rufous feathers on the breast.

Australian Snipe (*Gallinago hardwickei*). One was flushed from the margin of a small pool in the bush near Mackay on Aug. 20. This species may be expected to appear in Queensland in August, since in 1922 I saw the first at Westwood on Aug. 7, and in 1923 I saw one at Westwood on Aug. 14 and three at Rockhampton on Aug. 18.

Southern Stone-Curlew (*Burhinus magnirostris*). The familiar notes of this bird were heard at night at Yarrabah.

White Ibis (*Threskiornis molucca*). Some of these birds were seen amongst the mangroves both at Mackay and at Cairns.

Straw-necked Ibis (*Threskiornis spinicollis*). This species was common at Mackay and a few were seen at Kuranda.

Little Egret (*Egretta garzetta*). A few were seen feeding on the mud flats at low tide at Townsville, Cairns and Yarrabah. Their dark-coloured bills and legs distinguish them from the other white species of herons.

White Egret (*Egretta alba*). A few of these large birds were seen on the muddy beaches at Cairns and Yarrabah and one was frequenting a pool on the Barron River at Kuranda.

White-faced Heron (*Notophoyx novæ-hollandiæ*). A few "blue cranes" were seen at Mackay, Cairns and Yarrabah, and one on the Barron River at Kuranda.

Reef Heron (*Demigretta sacra*). These small Herons were common on the coasts of Magnetic Island off Townsville, and of Fitzroy Island and Green Island near Cairns. Some were also seen on the mainland coast at Cairns and Yarrabah. The two forms, dark-coloured and white, seemed to be about equally common in all these localities.

Mangrove Bittern (*Butorides striata*). A few were seen amongst the mangroves at Townsville, Cairns and Yarrabah.

Grey Goshawk (*Astur novæ-hollandiæ*). One was seen at Yarrabah on Sept. 6 and a pair circled round in the Barron gorge just below the falls on Sept. 10.

Wedge-tailed Eagle (*Uroaetus audax*). One was sailing round high over the scrubs at Kuranda in the late afternoon on Sept. 9.

White-breasted Sea Eagle (*Haliaetus leucogaster*). One was sailing round over Magnetic Island on Aug. 22.

White-headed Sea Eagle (*Haliastur indus*). A few of these beautifully coloured birds were generally flying about over the harbour both at Townsville and at Cairns. One was seen perched in a tree near the beach at Yarrabah.

Whistling Eagle (*Haliastur sphenures*). A few of these common scavengers were seen about Mackay, Townsville and Cairns.

Brown Hawk (*Ieracidea berigora*). One was seen at Yarrabah on Aug. 29. At Kuranda on Sept. 11 two were keeping a watch in the neighbourhood of a grass-fire burning on the river bank. One of them was seen to fly down and secure a lizard from the edge of the conflagration.

Nankeen Kestrel (*Cerchneis cenchroides*). One was seen at Townsville on Sept. 15.

Osprey (*Pandion haliaetus*). One was seen flying over the inlet at Cairns on Sept. 8.

Blue Mountain Lorikeet (*Trichoglossus moluccanus*). This was the only kind of Parrot seen. It was fairly common on Magnetic Island, also at Cairns, Yarrabah and Kuranda.

White Cockatoo (*Kakatoe galerita*). Numerous on Magnetic Island and about Yarrabah, also seen on Fitzroy Island.

Tawny Frogmouth (*Podargus strigoides*). At Kuranda one was heard calling after dark.

Laughing Kookaburra (*Dacelo gigas*). A few of these familiar birds were seen at Mackay, Yarrabah and Kuranda. They presumably belonged to the small northern race of the species, but their laugh was exactly like that of the southern birds.

Blue-winged Kookaburra (*Dacelo leachi*). A few of these birds were seen at Mackay and Magnetic Island and they were heard at Yarrabah, though I did not see one there.

Forest Kingfisher (*Halcyon macleayi*). Fairly common at Mackay, Magnetic Island, Yarrabah and Kuranda, scattered through the forest country.

Sacred Kingfisher (*Halcyon sanctus*). This familiar species was common on the sea-coast at Mackay, Townsville, Cairns and Yarrabah, and I think there is little doubt that the birds seen were migrants from the south, only here for the winter. Almost every stump or post along the foreshore at Cairns had one of these birds perched upon it, and at low tide they were constantly darting down on to the mud flats, perching long enough to secure a small crab and then returning to their look out. On Sept. 16 one of these Kingfishers flew on board the steamer in the evening and remained on board that night and all the following morning as we travelled south out of sight of land. It behaved in just the same way as other migratory birds which I have seen take advantage of a steamer travelling in the right direction. It kept flying to the bow of the ship and starting off over the water in the direction of the land but after flying parallel with the ship for a time returned to it and perched on the rigging. Towards noon Sandy Cape, the northern point of Fraser Island, came in sight and the Kingfisher set off from the bow and flew straight towards the cape until it was lost to sight. However, it apparently decided that the land was still too far away as it returned to the ship once more. A little later when the ship was fairly near the land it finally disappeared.

Bee-eater (*Merops ornatus*). Small parties of these birds were seen at all the localities on the mainland which I visited and also on Magnetic Island.

Large-tailed Nightjar (*Caprimulgus macrurus*). Soon after dark at Yarrabah on Aug. 29 and 30 a loud, sonorous "chop, chop, chop" resounded. The note was uttered three times, then there was a pause and it was repeated three times. I learnt that the natives called the bird the "wood-cutter," no doubt because of its note, but could not ascertain what it was like. As there was a good moon I thought there might be a chance of seeing the bird, and set off in the direction of the call. It was a good deal further away than I anticipated, but ultimately I traced it to a thick tree and had a glimpse of a bird of moderate size as it flew away. Presently the call sounded again, and I tracked it up more than once but failed to get a second glimpse of it. As I approached the tree in which it was, it was evident that it saw me, as it only uttered the note occasionally and then usually only a single "chop." Finally, there was silence, and after a time it would begin to call again from a more distant tree.

In Mathews' *Birds of Australia*, Vol. VII., p. 237, notes written by Mr. J. P. Rogers on Melville Island are quoted as follows: "Since coming here I have heard a bird in the mangroves every evening at dusk. I did not know the call; it sounded as if someone was tapping the end of a log with a hammer. This knocking could be heard for a considerable distance. This evening I saw a bird flying into the mangroves just at dusk. I fired and got one of these birds (Large-tailed Nightjar). This bird was making the knocking sound." Mr. Rogers' observation seems to settle the identity of the Yarrabah "wood-cutter" beyond doubt.

Grey Swiftlet (*Collocalia francica*). A common species at Cairns, Yarrabah and Kuranda, generally seen in small flocks circling swiftly round amongst the trees, especially favouring clearings in the forest. Many were flying about in the gorge of the Barron River just below the falls, and as they flew past close below excellent views of them were obtained. The rump which is described in books as "dusky-grey" appears white in life by contrast with the rest of the plumage, so that they have a great superficial resemblance to Tree Martins, but the long curved wings of the Swift are unmistakable. I never heard them utter any sound. At Cairns on Sept. 3 these birds kept passing south along the water-front, parties containing from half a dozen to fifty birds passing at intervals for some hours in the afternoon. Mr. F. P. Dodd informed me that he had witnessed a similar movement at Cairns on one occasion. I do not feel confident that this was an actual migration. It is possible that the birds were really flying in a great circle over the low-lying country between the sea and the hills. I have frequently seen Swallows and Martins do this towards evening, always passing in one direction along a stretch of river, then sweeping round over the land and regaining the river higher up. In their case the circle has been small enough to make this movement obvious, but in the case of the Swifts this was not so. As long as they were in sight they continued to fly steadily from north to south.

Brush Cuckoo (*Cacomantis pyrrhophanus*). The call of this bird was frequently heard and a few were seen at Yarrabah.

Rufous-breasted Bronze Cuckoo (*Lamprococcyx russatus*). The notes of this Cuckoo were frequently heard at Cairns, Yarrabah and Kuranda. Most frequently the call given was the one similar to that of the common Bronze Cuckoo, but occasionally they broke into the beautiful trill which resembles that of the Shining Cuckoo of New Zealand. I saw the birds on several occasions and once saw a pair together. The male was readily distinguished by his vivid red eye; that of the female appearing to be black.

Pheasant Coucal (*Centropus phasianinus*). The call of this bird was often heard and the bird itself seen at Mackay, Magnetic Island, Yarrabah and Kuranda.

Welcome Swallow (*Hirundo neoxena*). Numerous at all the localities visited on the mainland and also on Magnetic Island. A few breed at Mackay, but whether any nest further north I do not know. There is no doubt that this species is mainly a winter visitor to North Queensland.

Tree Martin (*Hylochelidon nigricans*). A few were seen at Cairns in company with Swallows.

Fairy Martin (*Hylochelidon ariel*). Numerous at Kuranda where they were flying about over the river. Martins were seen in other localities but their specific identity was not determined.

Grey Fantail (*Rhipidura flabellifera*). These birds were common about Mackay on Aug. 20. A few were seen at Magnetic Island on Aug. 22 and one at Yarrabah on Aug. 29. In North Queensland. this species is a winter migrant from the south. On Sept. 17 one was seen in the rigging of the S.S. Wyreema when out of sight of land off the Capricorn Islands. No doubt this was a migrating bird taking advantage of a ship travelling in the right direction.

Rufous Fantail (*Rhipidura rufifrons*). Common in the scrubs at Yarrabah and Kuranda.

Northern Fantail (*Rhipidura setosa*). A few of these birds were seen at Yarrabah in the belts of scrub near the coast. In appearance they are decidedly intermediate between the Grey Fantail and the Willie Wagtail, but seemed to be much less lively in their movements than either of these. Their song is loud and has some resemblance to that of the Wagtail.

Willie Wagtail (*Rhipidura leucophrys*). This familiar bird was common about Mackay on Aug. 20. Mr. Cornwall informs me that it is only a winter visitor to the coastal country, though breeding in the hills a few miles away. At Kuranda also it was common and Mr. Dodd informed me that it is a resident species. A single individual was seen several times near the same place in the town of Cairns, and there was also a single individual near the settlement at Yarrabah. The latter was seen in company with Magpie-larks picking ticks off the cattle. The study of the migratory movements of this species would be interesting. It seems probable that most of the winter visitors to the coastal districts of North Queensland have only made short journeys from the hills inland.

Leaden Flycatcher (*Myiagra rubecula*). Fairly common at all the localities visited on the mainland and at Magnetic Island. It seems probable that it is resident in North Queensland and that those which visit south-eastern Australia in summer come from New Guinea.

Boat-billed Flycatcher (*Machaerirhynchus flaviventer*). I was standing in a small clearing in the scrub at Kuranda towards evening on Sept. 10 when one of these little birds perched on the top of a stump quite near me. Its colour pattern of black, yellow and white was quite distinctive, though as its bill was only seen in profile its great breadth was not visible. It only remained for a few moments and then disappeared again into the scrub.

Pied Flycatcher (*Arses kaupi*). The same afteronon in the same clearing I made the acquaintance of a bird of this species, which, however, was feeding in the clearing for an hour or more and gave me numerous opportunities of observing it closely. It was a very lively bird, constantly in motion, flying from one branch to another, chasing small insects in the air and often clinging to the tree trunks and progressing up them with the aid of its wings.

Spectacled Flycatcher (*Monarcha trivirgata*). Frequently seen at Yarrabah and Kuranda, both in the scrubs and in more open country.

White-eared Flycatcher (*Monarcha leucotis*). One of these birds was seen in a scrubby gully on Magnetic Island, and they were frequent at Cairns and Yarrabah in mangrove and tea-tree swamps on the coast. Their habit of perching on the very tops of the smaller trees is noticeable, not merely on the upper twigs but actually on the leaves. As these do not provide them with adequate support, their wings are constantly needed and they flutter over the foliage of the trees perpetually snapping up small insects.

Lemon-breasted Flycatcher (*Microeca flavigaster*). This pretty little bird was fairly common in the forest country about Yarrabah, taking the place of its relative, Jacky Winter. Its habits seemed to be very similar and it was often seen perched on stumps. Its song, too, has a great resemblance to that of its southern relative.

Pale Yellow Robin (*Eopsaltria capito*). One of the commonest birds in the scrubs at Kuranda, where it was only necessary to remain still for a short time to ensure a visit from one or a pair. In several instances the parents were accompanied by full-grown young which were still being fed.

Golden Whistler (*Pachycephala pectoralis*). Several were seen in the scrubs at Kuranda, the females having pale yellow colouration on the breast and underparts. This is the sub-species *P. p. queenslandica*. The males were not noticeably different from southern birds.

Rufous Whistler (*Pachycephala rufiventris*). A few of these beautiful songsters were heard or seen at Mackay, Magnetic Island, Yarrabah and Kuranda.

Grey Whistler (*Pachycephala griseiceps*). On Sept. 10 in a clearing in the scrub at Kuranda I had a good view of a bird with a grey head, olive upper parts, white throat and canary yellow underparts. It was perched in a small tree singing a fine song composed of a series of loud, clear, musical notes. There can be no doubt that it was a Grey Whistler. Though I did not see another I heard the same notes in the scrub on subsequent occasions.

Rufous Shrike-thrush (*Colluricincla megarhyncha*). A common species in the scrubs at Yarrabah and Kuranda, where its fine notes were constantly to be heard and the birds frequently seen.

Magpie-lark (*Grallina cyanoleuca*). Plentiful in every locality visited on the mainland and on Magnetic Island. They especially favour the townships and cleared paddocks and were not in evidence in the scrub. A nest of this species was seen in a tree in a garden at Cairns. At Yarrabah four Peewees, assisted by a Wagtail, were watched picking the cattle-ticks off a cow. One sat on its back, another on its tail, a third on one of its hind legs and a fourth on the ground below. From these coigns of vantage they reached by stretching or by a short flight every point on the hind quarters of the animal, which thoroughly appreciated their attentions.

Black-faced Cuckoo-shrike (*Graucalus novæ-hollandiæ*). A few of these familiar birds were seen on Magnetic Island and at Kuranda.

White-breasted Cuckoo-shrike (*Graucalus hypoleucus*). A common bird at Cairns, Yarrabah and Kuranda. In appearance, habits and note it closely resembles the Little Cuckoo-shrike, and it is difficult to understand why they are regarded as distinct species, not merely geographical races.

Barred Cuckoo-shrike (*Graucalus lineatus*). On Sept. 10 a small flock of these birds was seen in the scrub in the Barron Gorge below the falls. Their pale yellow eyes were very conspicuous.

Varied Caterpillar-eater (*Lalage leucomela*). This was a common species at all the localities visited on the mainland and at Magnetic Island.

Southern Figbird (*Sphecotheres vieilloti*). Very common at Mackay, Townsville and Magnetic Island, feeding on the fruits of the fig trees in the streets and gardens.

Yellow Figbird (*Sphecotheres flaviventris*). One of the commonest birds and certainly the most conspicuous at Cairns, Yarrabah and Kuranda. In its habits it did not appear to differ from its southern relative, nor could I detect any difference in its notes. Small noisy parties were constantly feeding in the fig trees and flying from one tree to another. The males, with their bright yellow breasts, black heads and vivid red patch round the eye, are very handsome birds. The females did not appear to differ appreciably from those of the southern form. Among them were a number which I took to be immature males, with the naked skin round the eye pinky-red and the striped breast suffused with yellow.

White-throated Warbler (*Gerygone olivacea*). A bird of this species was seen and heard singing in open forest country on a hillside on Magnetic Island on Aug. 22.

Mangrove Warbler (*Gerygone cantator*). In the mangroves about Mackay and Townsville birds were seen and heard singing which I have no doubt were of this species. The very characteristic song, so familiar to me from residence at Brisbane, is apparently the most characteristic feature of the species, which the field observer would otherwise have difficulty in distinguishing from the other species which are similar to it in plumage. Though I was on the look-out for the species at Cairns and Yarrabah and spent a considerable amount of time amongst the mangroves in these localities, I did not hear or see any of these birds. The range of the species would thus appear to extend from Moreton Bay to Cleveland Bay.

Northern Warbler (*Gerygone mouki*). On Sept. 10 in the scrub at Kuranda I saw a brown Warbler which was presumably of this species, since the Barron River is the type locality of this bird. Its note was like that of the Brown Warbler (*G. richmondi* = *fusca*), a feeble " What is it ? What is it ? " Mr. Mathews considers that *G. mouki* is more nearly related to *G. laevigaster* than to *G. richmondi*. From the point of view of the field ornithologist the two types of brown Warbler are sharply distinguished by the fact that one type inhabits tropical scrubs and the other mangroves. Now, *G. laevigaster* is the northern mangrove species, and though its song has not been described it would be fairly safe to prophesy that it will be found to resemble that of *G. cantator*. On the other hand, if I am right in thinking the scrub-frequenting brown Warbler at Kuranda is *G. mouki*, then its note resembles that of the southern scrub form, *G. richmondi*. In this genus where the birds are so similar in plumage the notes may be a better guide to actual relationships.

Fairy Warbler (*Gerygone flavida*). Fairly common in the coastal scrubs at Yarrabah. The birds were generally seen in pairs and in each such case I carefully examined both birds to see if one of them had any sign of a dark mask. This was not the case, and I have no doubt that this was the same species as that met with at Rockhampton a year before. (*Emu*, xxiv., p. 161).

Large-billed Scrub-wren (*Sericornis magnirostris*). This little brown bird with the yellowish throat was very common in the scrubs about Kuranda, where little parties of them were constantly met with hopping about the undergrowth or the lower branches of trees.

Lovely Wren (*Malurus amabilis*). Two family parties of these Wrens were seen by a scrub-fringed creek at Yarrabah on Aug. 30. I could not in the field distinguish the males from those of *M. amberti*, nor were the females and young so distinct as I had anticipated. By chirping I brought them within a few feet of me, and noted that they had bluish heads and tails and a distinct light ring round the eye, but their backs were brown.

Orange-backed Wren (*Malurus melanocephalus*). A common species at Yarrabah and Kuranda, inhabiting areas of coarse grass and swampy country.

White-breasted Wood-swallow (*Artamus hypoleucus*). Common about the townships at Cairns, Yarrabah and Kuranda. At the latter place a number had congregated in the neighbourhood of a grass fire and kept swooping down from the trees on the insects that flew up as the flames advanced.

Eastern Whipbird (*Psophodes olivaceus*). Very common in the scrubs at Kuranda. One pair was seen accompanied by three young, feathered but not yet full grown.

Mistletoe-bird (*Dicaeum hirundinaceum*). Common at Magnetic Island, Yarrabah and Kuranda.

Spotted Pardalote (*Pardalotus punctatus*). A few seen in eucalyptus trees in open forest country at Kuranda.

Sunbird (*Cyrtostomus frenatus*). Common at Magnetic Island, Cairns, Yarrabah and Kuranda, chiefly in the mangroves and the flowering shrubs in gardens.

Grey-breasted Silver-eye (*Zosterops lateralis*). Silver-eyes were common at all the localities visited on the mainland and at Magnetic Island. In Mr. Dodd's garden at Kuranda they were seen collecting nesting material.

White-throated Honey-eater (*Melithreptus albogularis*). A small flock was seen in eucalyptus trees in forest country at Yarrabah on Sept. 7.

Scarlet Honey-eater (*Myzomela sanguineolenta*). Common at Mackay, Yarrabah and Kuranda, especially in the latter locality, where they were feeding on the flowers of bottle-brush trees growing along the bank of the river.

Dusky Honey-eater (*Myzomela obscura*). A few were seen on Magnetic Island and they were common at Kuranda and almost the commonest bird at Yarrabah.

Brown-backed Honey-eater (*Glyciphila modesta*). This was one of the commonest birds at Yarrabah though not seen elsewhere. It has a very pretty song, somewhat resembling that of the White-shouldered Caterpillar-eater, and is a lively bird, constantly darting about. The reddish legs and feet are very noticeable.

Brown Honey-eater (*Stigmatops indistincta*). This familiar bird was seen and heard at Mackay, Townsville and Cairns, where it chiefly frequented the mangroves. At Kuranda they were numerous in the bottle-brush trees along the river.

Yellow-spotted Honey-eater (*Meliphaga analoga*). This species was seen at Yarrabah and Kuranda, but it is not very easy to distinguish it from the Lewin Honeyeater. It is, however, smaller and rather lighter in colour, the yellow ear-patch is round and the streak along the gape is bright yellow.

Lewin Honey-eater (*Meliphaga lewini*). This was also seen at Yarrabah and Kuranda, chiefly in the scrubs, whilst the previous species seemed to prefer open country. It is larger and darker, the pale yellow ear-patch is more square behind, and the line along the gape appears white.

Macleay Honey-eater (*Meliphaga macleayana*). Single birds of this species were seen on several occasions, both at Yarrabah and at Kuranda, both in the scrub and in adjacent forest country. The best view obtained was of a bird feeding on the flower-stem of a grass-tree (*Xanthorrhoea*). On another occasion one was seen hopping up the trunk of a tree in the scrub almost like a Tree-creeper. This is a strikingly coloured bird, not much resembling any other species of this large genus with which I am acquainted. The crown of the head is so dark as to appear almost black, the upper parts are brown with whitish spots on the shoulders, beneath the throat is grey, the breast very dark brown above and lower down yellow more or less striped with dark brown. An area about the eye is devoid of feathers and is yellowish flesh-colour. I did not hear them utter any note.

Varied Honey-eater (*Meliphaga versicolor*). The loud, lively, rather musical calls of this bird were constantly to be heard in the trees along the sea-front at Cairns and Yarrabah, though I did not hear them in the mangroves. The birds mostly kept in the foliage of the trees, darting out and flying rapidly to another sheltered spot, but occasionally I got good views of them. I have no doubt that they were of the same species as the birds seen on North Keppel Island during the R.A.O.U. excursion last year.

Yellow Honey-eater (*Meliphaga flava*). A few of these beautiful birds were seen at Mackay and Townsville, and Mr. Dodd told me they were often in his garden at Kuranda, though I did not chance to see one there.

Helmeted Friarbird (*Philemon yorki*). Common at Mackay and Kuranda and extremely abundant at Cairns and Yarrabah and on Magnetic Island. Though I examined many Friarbirds through my glasses, all that I saw in North Queensland were of this species, characterised by the silvery feathers on the head and the elevated ridge on the base of the upper mandible of the bill. These birds seem to outdo all their relatives in pugnacity and noisiness, their notes much resembling those of the common Leatherhead.

Pipit (*Anthus australis*). A Ground-lark was seen at Kuranda on Sept. 10.

Zebra Finch (*Taeniopygia castanotis*). A small flock of these Finches was seen at Townsville on Sept. 15.

Banded Finch (*Steganopleura bichenovii*). A few "double-bars" were seen at Yarrabah on Sept. 5.

Chestnut-breasted Finch (*Donacola castaneothorax*). Considerable flocks of these Finches were seen near the coast at Cairns and Yarrabah.

Red-browed Finch (*Aegintha temporalis*). A flock of "red-heads" was seen at Mackay, and at Kuranda they were common. In Mr. Dodd's garden they were seen collecting grass for their nests.

Olive-backed Oriole (*Oriolus sagittatus*). One was seen at Mackay on Aug. 20. Notes identical with those of this species were heard at Yarrabah and Kuranda, but they may have been made by the next species.

Yellow Oriole (*Oriolus flavocinctus*). These birds were frequent in scrub country at Yarrabah and near Cairns. Their common call is quite different from that of the previous species and consists of three loud notes, the last of which has a bubbly or gurgling sound.

Spangled Drongo (*Chibia bracteata*). One was seen at Magnetic Island on Aug. 22. At Yarrabah they were fairly numerous in scrubby country.

Indian Minah (*Acridotheres tristis*). This was the only introduced bird seen and is common both at Townsville and at Cairns. During the daytime they are scattered about the gardens and outskirts of the towns in pairs, but at dusk they congregate like Starlings and roost together. I estimated that at least a hundred birds flew into one mango tree in Cairns, and there was another colony roosting a few hundred yards away.

Shining Starling (*Aplonis metallica*). These interesting birds had evidently returned to the Cairns district early in August, as at Yarrabah they had already begun to construct their nests in the topmost boughs of a large tree near the settlement on Aug. 28. The aboriginal name for them here is " Warrapitcha."

Pied Bell-magpie (*Strepera graculina*). Currawongs were numerous on Magnetic Island on Aug. 22 and on Sept. 14, but were not seen elsewhere.

Black Butcherbird (*Cracticus quoyi*). A few of these striking birds were seen at Yarrabah and at Kuranda. Their call-note sounded to me like " Kurrawa, kurrawa," and was not very loud.

Grey Butcherbird (*Cracticus torquatus*). A few were seen at Mackay on Aug. 20.

Spotted Catbird (*Ailuroedus melanotus*). The curious, cat-like calls of these birds were constantly to be heard in the scrubs at Kuranda but the birds were so wary that it was difficult to get a good view of them. They always preferred to eye the intruder from behind a tangle of vines or a leafy bough.

Victoria Riflebird (*Ptiloris victoriae*). Birds in the plumage of the female or immature male were seen many times in the scrubs at Kuranda, but I did not catch a glimpse of an adult male. Mr. Dodd informed me that a loud harsh call, something like that of a White Cockatoo, which I frequently heard, was the note of this bird. None of the female or immature birds which I watched uttered any sound. They were usually busily engaged searching the limbs and the trunks of trees, obviously for insects or spiders, and with their long, stout, curved bills they often detached considerable pieces of bark which fell to the ground. Not infrequently two were seen together, and the most interesting sight I witnessed on my journey was one of these birds displaying. He, for I presume it was an immature male, not a female, was perched on the side of a nearly vertical tree trunk. His two reddish-brown wings were spread very far forward, looking like a pair of fans, and he kept placing his head first behind one then behind the other, changing from one position to the other with great rapidity. He kept this up for several minutes, but as he was doing it when I first noticed him I cannot say how long the performance lasted altogether. The silent bird performing these antics was a remarkable sight, but whether another bird was watching him I do not know. If I was the only spectator, I was certainly an appreciative one.

Thornbills of the Genus *Acanthiza.*

BY A. G. CAMPBELL, J.P., Kilsyth, Victoria.

PART II.

Acanthiza pyrrhopygia, Gould.

(RED-TAILED THORNBILL)

JOHN GOULD described the species from the belts of the Murray, South Australia, and figured it in *Birds of Australia,* Vol. III., pl. 58 (1848). The figure represents the darkest and most robust race.

Type male No. 17595 (520) is in the Philadelphia Academy, U.S.A. Specimens Nos. 7752* and 2082 in the H. L. White collection (Melbourne Museum) are to be considered plesiotypes,

Examination of Skins.—7752, ♂, Wingamin S.A. Upper surface brownish olive; forehead crescents ochraceous buff with black bases; upper tail coverts argus brown; tail fuscous, with 50% white tips to outer three feathers; subterminal bar black .5 in wide, obscure on central feathers; throat and breast boldly striated black; abdomen white; flanks and undertail coverts similar cinnamon buff, washed buffy olive on upper flanks. Length 4.2 in.: bill .38 in.: wing 2.1 in.: tail 1.8 in.: tarsus .8 in. (identified with type by Dr. Stone).

27b., ♀, Wingamin, S.A. like plesiotype but crown and back, also undersurface lighter.

30, ♂, Buckland Park, S.A. Similar to plesiotype.

29, ♀, Karoonda (Mallee) S.A. Like plesiotype but crescents fewer and lighter: back of head lighter; undertail coverts darker.

28, ♂, Karoonda (Mallee) S.A. Like plesiotype but distinct band on central tail feathers.

28a, ♂, Karoonda, S.A. Like 29 upper surface lighter; upper tail coverts brussels brown.

511, ♂, 512 ♀, Karoonda, S.A. (A pair loaned by S. A. White). Similar to plesiotype except that ♀ has fewer crescents.

26, ♂, Mirar Head, Hooper, S.A. Upper surface more olive brown than plesiotype; upper tail coverts brussels brown; under tail coverts light buff.

26a, ♀, Mirar Head, S.A. Like mate 26 (shot same day), but flanks darker; under tail coverts cinnamon buff; wing 2.0 in.

539, ♂, Warunda Creek, Eyre's Pen. Similar to plesiotype.

31♂, St. Kilda, S.A. (mangroves). Dark like plesiotype, but crescents lighter; throat striations lighter; under tail coverts light buff; bill large .4in: wing 2.2 in.

510a, ♀, St. Kilda, S.A. (loaned by S.A. White). Like 31, except crescents darker and undertail coverts as dark as flanks.

2094, ♂, Kow Plains, (Mallee) Vic. Like plesiotype but lighter about crown; length 3.9 in.; bill .32 in. wing 2.1 in.

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*This was compared by Dr. Witmer Stone (27 June, 1923) with type and he states: "Your Wingamin specimen matches our type (17595) very closely. Both are distinctly brownish as compared with the other ashy or greyish birds which you send and are browner on the flanks."

2082, ♀ Kow Plains, Vic. Like plesiotype, fewer and more tawny crescents; under tail coverts warm buff tipped light buff; wing 2.0 in.

114, no sex, spirit specimen, Raak, Vic. (Mallee). Like 2094 but lighter on back, being tinged buffy olive; upper tail coverts brussels brown; band on central tail feathers wide.

2100, ♂, Cobborah, N.S.W. (Feb. 1915) similar to plesiotype, a robust bird; tail fuscous with bar .5 in. wide and broad tips of white.

2089, ♀, Cobborah, N.S.W. (March, 1915). Like 2100 but fewer crescents on forehead and striations on throat. (This bird has the third to seventh primaries edged tawny on the outer webs, making a conspicuous and unusual patch.)

2096, ♀, Cobborah, N.S.W. Similar to 2089, with a smaller tawny patch on wing. The above three Cobborah birds are recorded as having "eyes reddish brown."

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24, ♂, Port Lincoln, S.A. Resembles plesiotype but lighter behind head and only slightly tinged olive brown on back; upper tail coverts cinnamon brown. This skin has the centre tail feathers extremely long and pointed; tail 2.0 in.

25, ♀, Eyre's Peninsula, S. A. Like 24, but upper tail coverts brighter (brussels brown).

23, ♀, Venus Bay, S.A. Like 24, but back tinged lighter (buffy brown); margins of secondaries buff; base of tail lighter fuscous; legs black.

2141, ♂, Everard Ranges, Cen. Aust. Upper surface greyish olive tinged buffy brown on back like 24; forehead crescents distinct, light buff; upper tail coverts snuff brown; under tail coverts light buff; tail bar .5 in.; wing 2.1 in.

2092, ♂, Moorilyanna, Cen. Aust. Like 2141, but fewer crescents and striations: wing 2.9 in.

514, ♀, Moorilyanna Well, C.A. 538, ♀, Flatrock Hole, C.A. Like, 2092, crescents and throat striations fewer and lighter; under tail coverts darker.

513, ♂, Musgrave Ranges, Cen. Aust. 515, ♂, Moolooloo, Flinders Range, S.A., both similar to 2141.

540, ♀, Moolooloo, Flinders Range, S.A. Like 515 but much lighter. (The above five skins are in the collection of S.A. White).

7533, ♀, Palm Valley, Hermansburg, Cent. Aust. Like 2141; crescents and throat striations fewer; flanks and under tail coverts darker buff; bill .35 in.; wing 1.9 in.

7540, ♀, 7541, ♀, Palm Valley, Cent. Aust. Both like 7533 but upper tail coverts duller.

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2091,—Ooldea, East West Railway, S.A. Upper surface greyish olive like 2141; tinged on rump only with drab or buffy brown; upper tail coverts snuff brown, tail bar narrower, .45 in.

210a, Ooldea, E.W. Rly. S.A. Like 2091, but tail bar very wide, .55 in.

2146, ♂, Naretha, E.W. Rly. W.A. Upper surface like 2141 but undersurface lighter; throat striations fainter; flanks and undertail coverts cartridge buff. (Type *A. p. nullaborensis*, H. L. White, *Emu*, vol. XXI, p. 164).

2147, ♀, Naretha, W.A. Like 2146, but fewer crescents and fainter.

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2143, ♂, Zanthus, W.A. Upper surface darker like 24, with dark centres to some feathers of the mantle; upper tail coverts cinnamon brown; flanks and under under tail coverts warm buff.

2144, ♂, Zanthus, W.A. Like 2143; flanks darker still.

2145, ♂, Zanthus, W.A. Like 2143 upper tail coverts darker (brussels brown).

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313, ♂, Kychering Soak, E.W. Rly. S.A. Much lighter than 2141; upper surface drab, becoming buffy brown on rump; crescents indistinct; upper tail coverts cinnamon brown; wings hair brown; throat striations faint: flanks light buff; under tail coverts warm buff; wing 1.9 in. (Type of *A.p. erema*; see *Emu*, Vol. XXII., p. 64).

Gould pointed out that this species differs from *A. pusilla* and *A. apicalis* in having a more robust bill and greater depth of coloring on upper tail coverts, which showed very conspicuously. A. J. North stated it has more conspicuous white-tipped tail feathers and broader subterminal band. All corroborative evidence offered herein shows a defined position as a full species.

Skins show a robust, well-colored bird from South Australia, 7752, 511 and 30, which can be easily identified with Gould's plate. Similar birds are found at Cobborah, 180 miles north-west of Sydney. Birds from the mallee scrubs of Victoria very much resemble these, though not quite so robust in appearance. A duller phase of plumage is noted both here, 114, and in the South Australian mallee No. 28. The color of the upper-tail coverts runs well down on the outer webs of the tail feathers. A variety to note in passing is No. 31, from mangrove country, with heavier bill and longer wing than is typical.

The sexes often show variation, the female being smaller in the wing, lighter on the throat striations and darker on the under-tail coverts, besides having fewer crescents.

Moving westward from the type locality skins were taken on Yorke Peninsula and at Port Lincoln, 150 miles from Adelaide, but still in the same rain belt (See map *Emu*, vol. xxii., p. 29). But skins 24, 25 have lost tone in the plumage generally; that from Venus Bay, 23, still more so, especially in the back and base of tail. Here is a pallid form, and somewhat similar birds are obtained at various points in Central Australia.

The influence of the desert conditions of the vast interior is marked in a graduated scale upon this species. Lighter plumage first noted among specimens from the Mallee, becomes general when approaching the lower rainfall of Venus Bay. Then skins from the Everard and Musgrave Ranges, 600 miles north-west from Venus Bay, are similar to one another, greyer on the head and several tones duller on the upper-tail coverts. Skins from Flinders Range resemble these, but those from the McDonnell Ranges are darker on the under-surface (females only).

Then come specimens from Ooldea, more pallid still, being brownish on the rump only. All these birds, singularly enough, become stronger in the wing, as shown by the wing formulae, to compensate them in the struggle for existence. Skins from

Naretha, on the Nullarbor plain, are like those from Ooldea, except that the color patch on the upper-tail coverts appears more restricted in area.

Smallest and lightest of all is the skin from Kychering Soak, to the east of Ooldea and about 50 miles from Tarcoola. This represents the extreme eremian or desert race. From Zanthus, further to the west, a dark form appears, very like that from Venus Bay, 500 miles away.

It cannot be inferred that the species spread across the desert over vast distances, with conditions as arid as they now are. It must be assumed that the birds were distributed under much more favorable conditions, before Australia had developed this dry interior. Then as the meteorologic action set in which resulted in the formation of the desert, the species steadily adapted itself to the retrograde conditions and doubtless many other varieties of small birds were wiped out of existence.

The name *A. p. venus* will stand for the pallid race of *A. pyrrhopygia*, found to the west of the type locality, the chief characters being: Back of head greyer than type, upper-tail coverts brussels brown.

A. p. consobrina is a good sub-species represented by the inland form, Flinders Range to the Musgrave and McDonnell Ranges on the old land surfaces. Characters: Back of head and neck grey; upper-tail coverts snuff brown.

A. p. nullaborensis is the race represented by skins from Ooldea and Naretha on the Tertiary areas. Characters: Back of head and back also grey.

A. p. erema is the smallest and lightest race of the desert soak, being drab above, crescents and throat striations almost lost.

The limits of the species to the north and west are not yet determined. Much real desert occurs in central Western Australia, the boundaries of which and the influence on distribution are not known.

Width of tail bar in *Acanthiza pyrrhopygia* is a singularly consistent guide to species.* .5 inch wide is found from Cobborah, N.S.W., to Zanthus, W.A., and from about Nhill, Vic., to the McDonnell Ranges, C.A.† The rare exceptions noted in certain skins, particularly from Ooldea, may be considered slight sportive variations, and as such the exceptions prove the rule. More distinct individual variations are those of the tawny wing patch, 2089, the long tail feathers, 24, the streaked back, 2143, or even the unusual narrowing tail bar shown by the plesiotype itself, all of which may be only recessive characters of the species. Slight individual variations other than sexual may be looked for in any species, but are not noted in this review.

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*Measurement of the tail bar in every instance is made with calipers and the width taken on the shaft line of the third feather from the outside. Occasionally the dark color tends to run out in a small point on the shaft but this point is not measured.

†Also Tanami; see *Nov. Zool.* Vol. XVIII, p. 349.

Acanthiza albiventris, North.

(INLAND THORNBILL.)

This species was described by A. J. North in *Nests and Eggs*, Vol. I., p. 276 (1904) as a variety of *A. pyrrhopygia*, from Dubbo, N.S.W. A colored plate in Mathews *Birds of Australia*, Vol. IX., plate 447, middle bottom figure, possibly is applicable to this species. Type male is in the Australian Museum, Sydney, N. 22917.

Examination of Skins.—22917, ♂, Dubbo, N.S.W. (Sep. 1876) (Type *A. albiventris*, North, loaned by Aus. Mus., Syd.)

Crown and back olive brown; forehead crescents light buff with blackish bases; uppertail coverts bright hazel; tail with outer webs hazel, inner webs light at base, tinged hazel near shaft; black bar .6 in. wide, tips white; throat striations black and heavy; sides of breast grey; abdomen white; flanks light buff; undertail coverts lighter. Length, 4.3.in.; bill .35 in.; wing 2.2in.; tail 1.8in.; tarsus .75in.

2097, ♂, Cobborah, N.S.W. Greyer on back of head and neck than type; uppertail coverts lighter (cinnamon rufous); undersurface whiter.

2098, ♀, Cobborah, N.S.W. Like 2097 but flanks and undertail coverts tinged light buff.

223a, ♂, Cobborah, N.S.W. (Dec. 1914). Like type, but crown tinged tawny.

2095, ♀, Cobborah, N.S.W. (Nov. 1915). Like 2098; striations light; sides of breast greyer, meeting in centre.

(The eyes of these four are recorded as red with outer circle very pale yellow).

411, ♂, Cobborah, N.S.W. (Aug. 1920). (This and three following loaned by T. P. Austin.) Like type; flanks light buff; undertail coverts white; very wide outer webs to tail feathers.

412, ♀, Cobborah, N.S.W. (Sep. 1920). Like type, but upper tail coverts darker tawny).

413, ♂, 414, ♀, Cobborah N.S.W. (Sep. 1920). Both like type; ♀ has duller striations.

516, 517, no sex, Moree, N.S.W. (Two spirit specimens in Aus. Mus. Syd.) Both like type, but base of tail more tinged hazel on inner webs, base of central feathers being as bright as coverts.

REMARKS.

The unique value of an accredited type individual specimen is here apparent. The type male of *A. albiventris* was examined through the courtesy of the Australian Museum, when it was seen that eight birds from Cobborah, 50 miles from Dubbo, closely resembled it. Skins 2097 and 411 answer to the type description of under-surface, while the other specimens show only the variation of flanks and under-tail coverts light buff.

Cobborah specimens show a further variation, owing to the crown and back of the neck being greyish olive, without the brown tone of the type, the back only being brown. Upper-tail coverts are lighter and the under-surface generally whiter. Individual, possibly seasonal, variation is noticed in the different tones of the upper-tail coverts. The type is darkest hazel; then in order, according to Ridgway's Chart, are cinnamon rufous, tawny, ochraceous tawny and cinnamon, each a tone lighter than the other, all being in one group of rufous colors.

The sexes appear to vary slightly. The female, besides being smaller in the wing, is sometimes darker on the undertail-coverts and often greyer in the throat striations.

All skins, when compared with the typical *A. pyrrhopygia*, show a brighter color in the upper-tail coverts, running well down on the outer webs of the tail as far as the bar; and as these webs are particularly wide the area so covered is large. The color should not be mistaken for *A. pyrrohpygia*, which is argus to brussels brown, many tones darker. The inner web of the tail feathers (basal half) is drab, and becomes lighter toward the base, often being tinged with the color of the coverts; this cannot be confused with *A. pyrrhopygia*, which is fuscous black. Lastly, the tail bar is .6 inch wide, not .5 inch, and the tips of the tail feathers though equally marked with white, have blunt points. These features of the tail are the most important of the species, and place it in the unique position of being a connecting link, or rather a half-way species, between *A. pyrrhopygia* and *Geobasileus uropygialis*, having the upper and under-tail coverts and tail band (also tips) of the latter, together with the throat striations and general appearance of the former.

The position of *A. albiventris* is rendered more distinct by the fact that typical skins of all three species were taken in the same locality, Cobborah, N.S.W.

Acanthiza whitlocki, North.

(NULLARBOR THORNBILL.)

The species was described by A. J. North in the *Victorian Naturalist*, vol. xxvi., p. 55, 1910.

A colored drawing, which probably represents the darker form appears in Mathews' *Birds of Australia*, vol. ix., pl. 447, left hand figure.

Type male is in the Australian Museum, Sydney; taken at Lake Way. W.A.; No. 16358. Specimen No. 2142, in the H. L. White collection, is a co-type, or paratype.

Examination of Skins.—16358, ♂, Lake Way, W.A. (1/7/1909). (Type *A. whitlocki* loaned by Aus. Mus. Syd.). Upper surface deep olive grey, tinged on back with buffy brown; crescents whitish with base feathers blackish; upper tail coverts brussels brown; tail bar .5 inch wide, distinct on central feathers; tips all white on inner webs except central; throat striations greyish black; flanks and undertail coverts similar light buff. Length, 4.1 in.; bill .35 in.; wing 2.1 in.; tail 1.9 in.; tarsus .8 in.

2142, ♂, Lake Way, (5/7/1909). Similar to 16358. (This is a co-type.)

2070, ♂, Yalgoo, W.A. Similar to type.

6028, ♂, Yalgoo, W.A. Like type but upper tail coverts duller (cinnamon brown); wing 2.0 in. (This and four following loaned by W.A. Museum).

1280, Morewa, W.A. Like type, but flanks and undertail coverts darker buff.

9310, Murchison, W.A. Like type, but upper tail coverts duller.

108, ♂, Woodlakine, W.A. Similar to type.

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6956, Yandanooka, W.A. Upper surface much duller than type, being drab tinged on back with buffy brown; forehead crescents few and indistinct striations not distinct; upper tail coverts brussels brown not running down outer webs; tail bar .45 inch.

6957, Ebano. W.A. Like 6958 but crescents, more distinct and upper tail coverts cinnamon brown.

109 (6961), Ebano, W.A. Similar to 6956; a pallid form (A.W. Milligan's collection).

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2135, ♂, Peron Peninsula, Shark Bay, W.A. (Nov. 1918). Upper surface greyer than type, without brown tinge on back and rump; under surface much lighter, throat striations not extending to breast, which is white; abdomen white wing 2.0.in.; tarsus .7 in.

2136, ♀, Shark Bay, W.A. Like 2135, but fewer crescents and striations; tail much frayed, showing light brown shafts; edges of secondaries buff.

2134, ♂, Shark Bay, W.A. Similar to 2135; tail normal, showing dark shafts.

2137, ♀, Shark Bay, W.A. Like 2136, but more color (warm buff) on forehead and flanks; bill .32 in.

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256, ♂, Peron, Shark Bay, W.A. (Nov. 1916). Like type, showing buffy brown on back; striations distinct on throat and breast.

257, ♀, Peron, Shark Bay, W.A. Similar to 256, and much darker than 2136, wing 1.9 in.

REMARKS.

Specimen 2142, from Lake Way, was procured by the same collector, F. L. Whitlock, four days later than the type, and as it seems to be one of the skins examined by A. J. North referred to in the type description, it therefore is a co-type. Skins from Yalgoo and Murchison districts are similar. They have upper tail coverts brussels brown and tail bar .5 inch wide, therein showing their affinity with the pallid races of *A. pyrrhopygia* rather than with *A. apicalis.* The type description notices the purer white underparts and broader subterminal bar when compared with that common W.A. species, but nowhere has *whitlocki* been associated with *pyrrhopygia* until now. They are the western and eastern representatives of a stock which once ranged right across Australia, before the great desert barriers appeared. *A. whitlocki* is worthy of specific rank, being distinct from type *pyrrhopygia* though the latter in its pallid races, *consobrina* and *nullaborensis,* may exhibit gradations toward the former. *A. whitlocki* is a more slender bird than *pyrrhopygia,* the tail is slightly longer and the bill not so robust. The wing formula shows longer pinions, particularly the second feather, while the crescents on the forehead and the under surface are whiter.

Probably the natural boundary between the two species is found in the great deserts, Gibson and Victoria Deserts, which lie athwart Western Australia, near the political boundary with South Australia. It is a land of great distances. Lake Way is 500 miles from Naretha, the locality of *A.p. nullaborensis* while the type localities of the species are 1250 miles apart.

Skins from Ebano, 180 miles north of Perth, are a pallid race, of drab appearance and obsolete throat striations. They are somewhat analagous to the desert *A.p. erema* on the other side of the great barrier,but the tail bar is .45 inch wide. Such variation is distinctly rare and it may be that further material of this kind will help to solve the connection between *A. apicalis*, the coastal species in Western Australia, and *A. whitlocki*, the interior species representative of older stock.

For the present I prefer to recognise desert forms as pallid races (subspecies) of species inhabiting the country on the border. They are not necessarily connecting links with something beyond, for on the opposite side of the desert region there may be different species of the same genus, each with their own particular pallid forms.

Where the arid belt runs out to the coastline (see map, *Emu*, Vol. XXIII, p. 29) lies Shark Bay, from which locality six skins were taken* which show sub-specific variation to the extent of losing nearly all the buffy brown tone from the back and nearly all striations from the breast proper.†

There are two others specimens in H. L. White collection, 256-7, labelled Shark Bay and taken by another collector in February, three months later, which have the browner mantle typical of the species, not resembling the Sub-insular form above noted.

Acanthiza apicalis, Gould.

(BROAD-TAILED THORNBILL).

This species was first discovered and named by John Gould from Swan River, W.A., in 1847 (see *Proc. Zool. Soc.*, London, p. 31) and was figured in his *Birds of Australia*, Vol. III. pl. 57. In Mathews' *Birds of Australia*, Vol. IX., pl. 448, the top figure will represent the dark race.

Type male, No. 17592 (537) is in Philadelphia Academy, U.S.A. Two other specimens from the Gould collection are in the British Museum, one from Perth, and the other from King George's Sound. Specimens 6674 and 2138 in the H. L. White collection may be considered plesiotypes.

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*[*Emu*, Vol. XX., p. 17.

†These are not *A.p. peroni*, Mathews, which name appears to be a synonym of *A. whitlocki*. See also Mathews' *Birds of Australia*, Vol. IX, pp. 413, 432.

Examination of Skins—6674, ♂, Broome Hill, W.A. Upper surface olive, greyer on back of head and tinged dark citrine on rump; forehead crescents nearly white with blackish bases; upper tail coverts brussels brown; tail with 40 per cent white on inner webs at tips; subterminal dark band .4 in. wide; obscure on central feathers; flanks tawny olive; undertail coverts buff. Length 3.9 in.; bill .32 in.; wing 1.9 in.; tail 1.8.; tarsus .75 in.

2138, ♀, Mandurah, W.A. Like 6674, but flanks darker and under tail coverts lighter.

6668, ♂, Gnowangerup, W.A. Like 6674, but bill large .35 in.; flanks darker; undertail coverts much darker (ochraceous buff).

35, ♂, South-West Australia. Like 6674, but whole plumage more brilliant

38, ♂, Ellensbrook, W.A. 36, ♀, Claremont, W.A. 305, ♀, Gordon River, W.A. All similar to 6674.

2139, ♀, Kelmscott, W.A. Like 6674, but greyer on throat, striations being indistinct (probably immature).

2140, Kelleberin, W.A. Like 6674 but lighter.

* * * * *

2153, ♂, 2154, ♀, Kalamunda W.A. Both darker than 6674, having back brownish olive forehead crescents flanks and undertail coverts darker; wing 2.1 in.

37, Albany, W.A. A dark bird, similar to 2153.

2155, ♀, Irwin's Inlet, S.W.A. Like 2153; rich coloration. bill .38 in.; no light base. (Collectors note on label:—Lives in open country chiefly).

B. 388, ♂, Warren River, W.A. (loaned by S.A. Mus.). Similar to 2153 and darker than 6674.

2159, ♀, Tenterden, W.A. A dark bird, like 2153, but throat striations greyer.

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2152, ♂, Stirling Ranges, W.A. Upper surface dark greyish olive, lighter than 6674, but crescents darker and under tail coverts light pinkish buff; wing 2.0 in. tarsus .8 in.

2149, ♀, Stirling Ranges, W.A. Like 2152, but flanks darker and undertail coverts darker (cinnamon buff); bill and legs black.

2150, ♂, Stirling Ranges W.A. Like 2152, but under tail coverts distinctly light tipped.

2151, ♂, Stirling Ranges, W.A. Like 2152, but forehead crescents darker and flanks lighter.

2148, ♂, Stirling Ranges, W.A. Like 2152 but fewer crescents.

REMARKS.

Gould when he obtained the type in the vicinity of settlement at Swan River, happens to have described or figured what is really a standard or typical specimen. He points out the broader band and the white tips of the tail when compared to *A. pusilla*. But later exploration and research have bought to light many interior and far interior *Acanthizae*, concerning which there had been much confusion. An important point to remember is that such forms are not directly connected with this species. but refer to *A. pyrrhopygia* (pallid races) and *A. whitlocki*. There is furthermore, a race of *A. pusilla* to be found in the extreme south-west, but here again the species is distinct and recognisable. Although two species may here appear to overlap, it is probable that they arrived in this district from different directions. It is reasonable to assume then, that the good climatic conditions which gave one species a rich dark tone of plumage, will also influence the other allied species in a similar manner. There the likeness ends. *A. apicalis* answers to its formula for the third tail feather, bar .4 inch wide tip largely white, while *A. pusilla* has the tail bar .3 inch wide and tip with little or no white.

All skins of *A. apicalis* from inside the belt of good rainfall (see map, *Emu*, Vol. XXIII, p. 29) are dark in tone, being tinged on the back with bright dark citrine. Skin 38 is especially bright. The back of the head, however, inclines to grey, and a character of the tail is that the color of the upper tail coverts does not run down the outer web of the tail feathers, which are mainly fuscous at the base.

Skins from Albany, 37, and Irwin's Inlet, 2155, have a richer tone (brownish olive) and forehead crescents much darker than in the plesiotype. Specimens from the Stirling Ranges, on the other hand, show a lighter plumage (dark greyish olive), which is consistent in all skins from that region.

There is every possibility of intergradation being complete between such birds as 2152, 6674 and 2155 akin to the gradation found from *A. inornata* to *A. i. mastersi*, inhabiting much the same region.

A. apicalis may be considered the western off-shoot of *A. pyrrhopygia* within the isohyet or line of 20 inch rainfall. Under remarks on the latter species, details are given of the various stages or alterations observed across the vast interior of Australia, a distance of 2,000 miles. When the coastal belt of the south-west region is reached a change back from pallid to darker plumage is found, but the differences between *A. apicalis* at one side and *A. pyrrhopygia* at the other are so marked and consistent that they are plainly specific.*

Note.—The specimens reviewed in these notes are referable as follow: Nos. 1 to 94, collection of Edwin Ashby, Adelaide; 95 to 120, A. W. Milligan collection, Melbourne; 400 to 420, collections of S. A. White, Adelaide, and T. P. Austin, Cobborah, N.S.W.; 300 to 350, National Museum collection; 2074 upward, H. L. White collection. My best thanks are due to the owners of these skins, also to the Trustees of Australian Museum, Sydney, the South Australian Museum, the Queensland Museum and the West Australian Museum for the loan of valuable material. The main object of this examination was to bring together all known skins in existing collections for purposes of tabulation and comparison one with another, in this manner determining as far as practicable the limits of each species and the lines of demarcation between subspecies, at the same time setting up standard specimens which with types may serve as a starting point for future work. See *The Emu*, Vol. XXII., p. 192, also Vol. XXIII., p. 28. Errata. 11th line read " more" for " less," p. 30. 17th line. Read " less " for " more."—A.G.C.

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*There are two skins listed under *A. whitlocki*, 6957 and 6961, both from Ebano, 180 miles north of Perth, which appear to show a link between that species and skin 2139, *A. apicalis*, but sufficient material has not yet appeared to warrant any statement, other than that there is a distant connection between those two species.

Filming Lyre-Birds.

BY R. T. LITTLEJOHNS, R.A.O.U., Melbourne.

NATURE photography has became so popular of recent years that there is difficulty in obtaining pictures which are to any extent novel, especially when the operations of the photographer are restricted, as is the case with most of us. It was partly this fact which influenced me some few years ago to turn to cinematography in order to picture old friends in a new way. My principal aim, however, was to popularise the study of natural history and thus to encourage the more efficient protection of our fauna.

At the outset, I found most film people sceptical about the possibility and interest of nature films, but eventually Mr. C. R. Herschell, of Herschell's Pty. Ltd., Melbourne, agreed to provide me with camera and film in order to try out the idea. When it is considered that Mr. Herschell handed over valuable apparatus and costly film to an unknown person with nothing except a few " still-life " pictures to recommend him, the sincerity of his interest in Australian wild life will be realised.

After some time spent in experimenting and learning the principles of the motion picture camera, the apparatus was set up before the nest of a Yellow-tailed Thornbill at Oakleigh. A few feet of film were exposed, and the experiment was sufficient to show up many of the difficulties to be overcome and to give some encouragement besides. Steps were taken to surmount the difficulties met with, and the first serious attempt was made a week of two later at the nest of a pair of Yellow-breasted Robins. This subject was chosen because of the necessity for giving speedy proof that convincing results were possible.

The massive tripod and awe-inspiring camera were erected two feet six inches from the nest, and the rather difficult process of foscussing was carried out carefully. The previous experience had shown that the rapid movement of the operator's hand caused " nerves " in even the most trustful subject, and it became necessary to improvise a screen to hide this movement. The next difficulty concerned the sound made by a cinema camera in operation—and that is fearsome. After some experiment with padding, which, however, had no appreciably deadening effect, the problem was approached from the rear, as it were. An electric gong and battery were arranged to make a sound which resembled that made by the camera, and these were used to accustom the birds to the noise without using film. This plan succeeded, not only in this case but in all others, to an extent far beyond expectations. These two contrivances, with the aid of considerable patience, have made it possible to obtain films in almost every case attempted. In some instances, notably that of the Blue Wren, the natural vivacity of the bird prevented the exposure of more than a few feet of connected film at a time. Such exposures as do not run to at least six feet without interruption are useless for screen purposes.

To return to the Yellow Robin venture. The pair of birds mentioned maintained all the traditions of the species for trustfulness, and a fairly complete little life-story was obtained. The breathing of the bird could be distinctly seen as she sat admiring the eggs or, later, fed the young ones. Domestic duties were carried out naturally and without haste, and often with a human finger stroking the feathers of the adult bird.

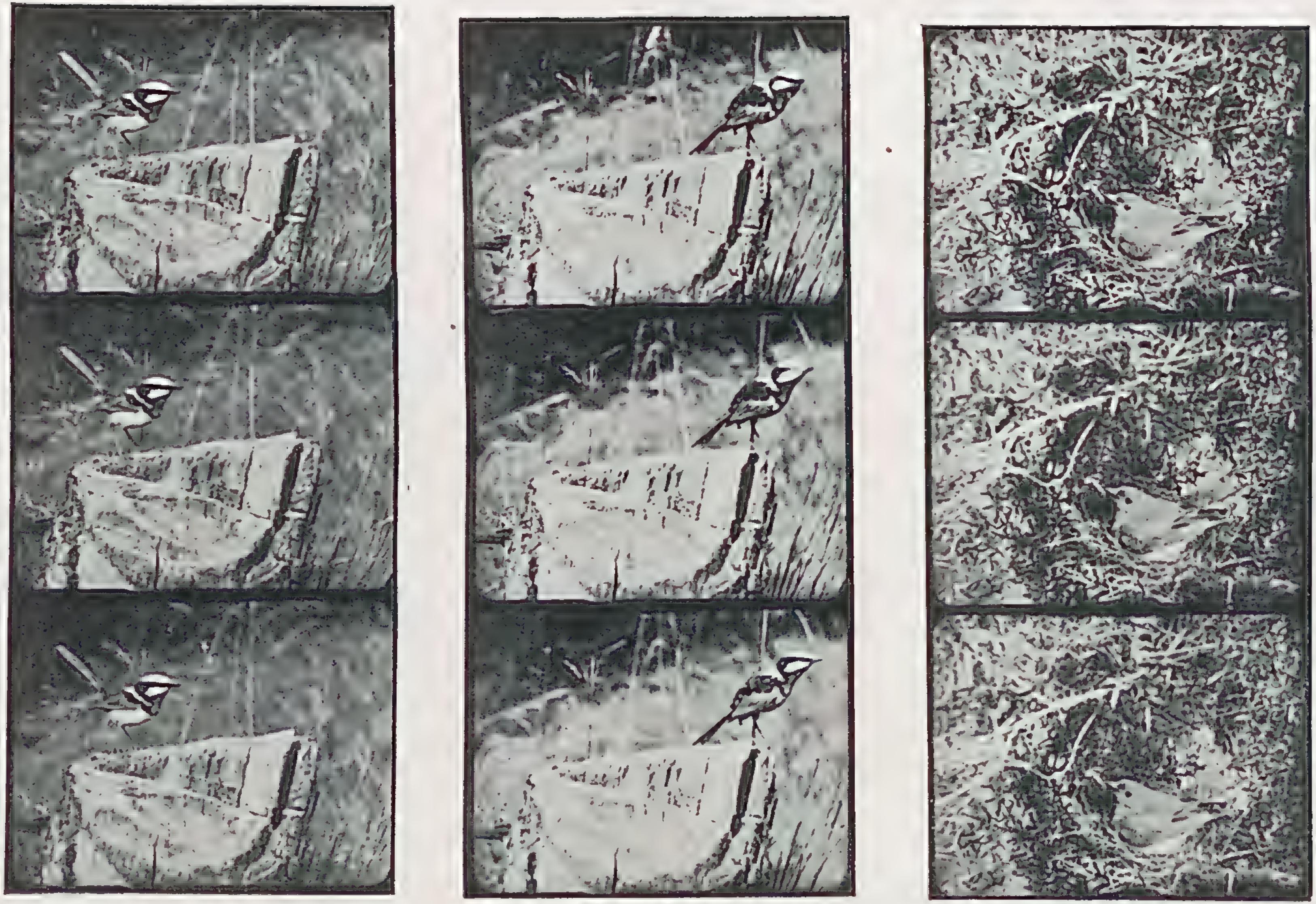
It is unnecessary to set out details of film taken at the nests of Whistlers, Wood-swallows, Black-and-white Fantails, Brown Flycatchers and some others. In none of these cases was a complete story made. I should say, however, that some of the pictures mentioned were obtained as a result of the kindness of Mr. Walter Burke, F.R.P.S., of Sydney, who also supplied camera and film.

The most serious work in this branch of photography was undertaken at Sherbrooke (Victoria) during the past season (1925), when an attempt was made to film the Lyre-bird at home. In fact, it was with the idea of obtaining pictures of the Lyre-bird that the experiments of the previous years were made. Mr. Herschell again provided apparatus and material, and preparations were begun in May, when the birds were calling from the mounds. An imitation tree-trunk was built at home, carried to the forest in parts, and erected near a well-tilled mound. Pressure of other work and bad weather prevented any use of the hide at this time, and attention was turned later to the discovery of a nest. This proved a long and an arduous business. On 15th August, however, when Master T. Givens (probably our youngest bird photographer) accompanied me, a nest was discovered.

Then commenced a new series of tests under the poor lighting conditions in the forest, and the results at first were distinctly discouraging. In fact, after the failure of one trial exposure, I told Mr. Herschell that I could not justify wasting any more of his film. However, before the next week-end I had made new plans, forgotten the failures, and returned to ask for further supplies. And as a result of more experiment and because of an improvement in the light as the season advanced, the results steadily improved until it was decided to make a serious exposure.

This was on the 19th September. I arrived at the nest shortly after 8 a.m. and entered the hide to await suitable light, meanwhile hoping that the male bird would visit the nest. He did not appear, and after three hours I emerged with the camera to photograph the female, for whom no hiding device was required. From eleven o'clock until two, at which time the sun sank behind the forest, I followed the female bird about, waiting for effective light and for interesting incidents. The bird was exceedingly trustful and the whole thing would appear simple ; but really it was strenuous and nerve-racking to a degree.

At each removal of the camera it was necessary to measure afresh the distance of likely spots as a guide to focussing. Then it was necessary to operate the focussing device as the bird moved nearer to or further from the camera, to raise or lower the camera with one hand le and to follow the movements of the bird from side to side with another



1—MALE BLUE WREN. 2—MALE BLUE WREN IN ATTITUDE OF DISTRESS. 3—FEMALE RUFOUS WHISTLER ON NEST.
Enlargements from film by R. T. Littlejohns.

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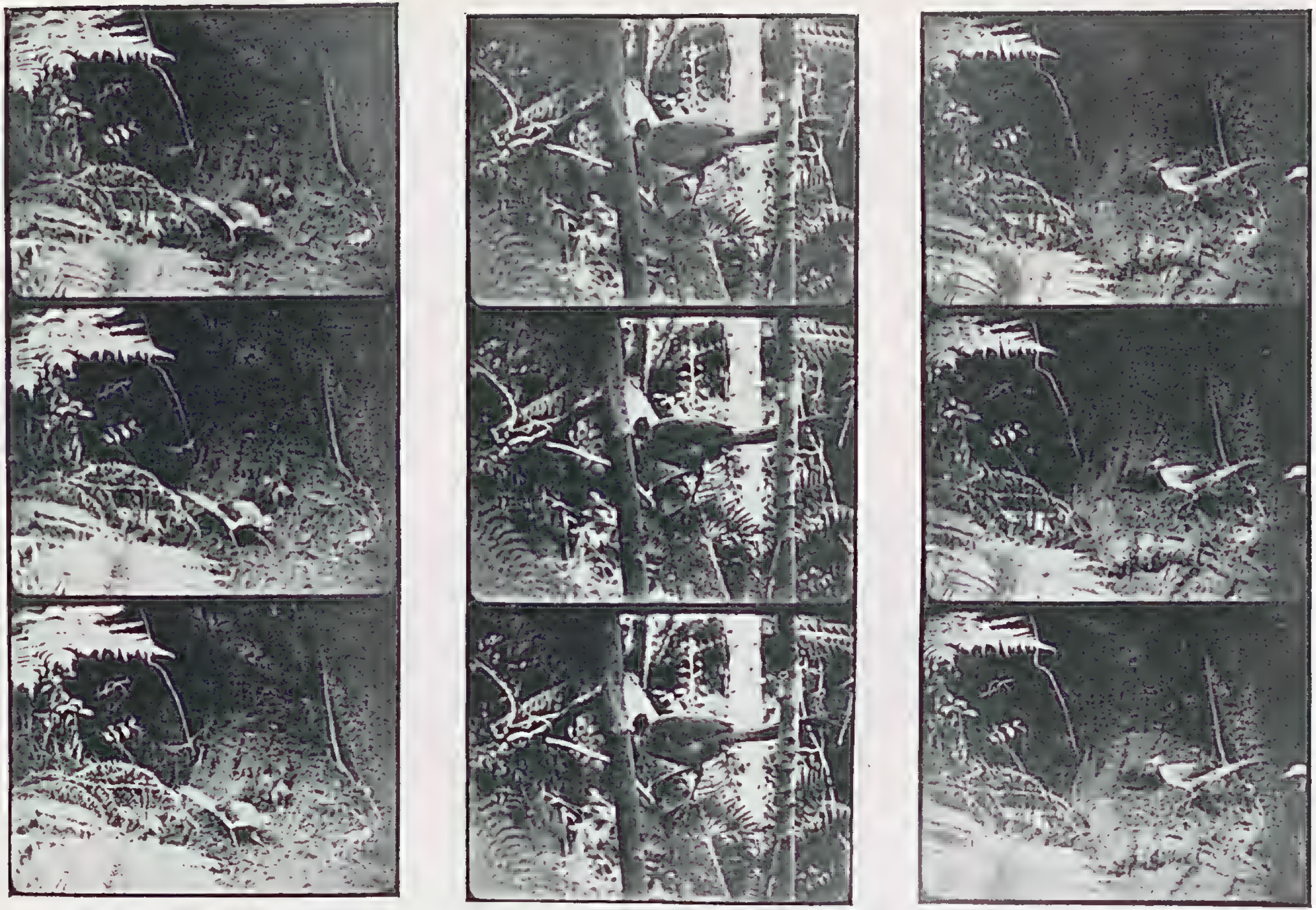


FEMALE LYRE BIRD: 1—SCRATCHING ON LOG. 2—SHOWING THE STRONG FEET. 3—SUSPICIONS AROUSED.
Enlargements from film by R. T. Littlejohns.

After that it was necessary to operate a small clicking device in order that there should be no sudden sound to startle the bird when the actual turning was commenced. The variation of the light had also to be considered when calculating the lens aperture to be used and the speed at which the handle was to be turned. By that time, probably, the area under view was in shadow and the performance had to be repeated elsewhere.

It may be understood, then, that even the exposure of sixty feet of film which, in actual turning time, occupied one minute, left the operator with the feeling that he had performed a hard day's work. Quite often, too, the most interesting incidents occurred when the film had been exhausted. However, after ten or a dozen visits to the nest almost every incident in which the female bird took part had been pictured. The male bird had been seen near the nest only on one occasion, and then at too great a distance to be photographed.

On October 10th the young bird left the nest, a desirable record that was missed through the failure of the camera. In response to persistent promptings from his maternal parent, the youngster had risen unsteadily to his feet, had stood hesitating in the nest entrance, and had then staggered after her into the forest. But the loss of this picture was compensated somewhat on the following day, when mother and chick were photographed together some distance away from the nest. This last incident was filmed in poor light in a dense tangle of undergrowth, and the fact that even fairly satisfactory results were obtained speaks well for the efficiency of the staff of Herschell's Pty. Ltd.

Realising that a motion picture history of the Lyre-bird without some record of the male would be incomplete, I made one more trip, with even heavier apparatus, the weight of which made clambering through the undergrowth decidedly uncomfortable. The camera was erected near an open space known as a popular feeding-ground, in the very faint hope that a male bird would wander along. The unexpected happened, but it happened all too swiftly, before I had time to complete the necessary screening of the camera and of myself. A fine male appeared on a log well within the area of view, saw me before I saw him, and departed hurriedly. He did not return.

However, there are a few surprises awaiting male Lyre-birds in the near future, and I hope that before the film is finally released I will have been able to add a section picturing the adult male.

I have not attempted to set down any of the habits of the Lyre-bird as there are several other observers who have devoted much more time to the study of them than I have done. Mr. Tom Tregellas was in their haunts once more and, I believe, recorded many new facts. Mr. Donald Thomson and the Messrs. Lang I knew to be also working at different points across the forest. It is to be hoped that the observations of these workers will be recorded. One point may be worthy of notice. The young bird which I had under observation was hatched not later than the 27th August, and, as has been mentioned previously, left the nest on the 10th October at the age of six weeks and three days, perhaps more. In view of the fact that the nest was near the ground and presented no difficulties of exit, the period during which the young bird remained in the nest seemed to me longer than is usually the case.

After having exposed a considerable length of cinema film at the homes of different birds I must confess that, for thrills, still photography appeals to me more. I have proved to my own satisfaction too that motion pictures may be obtained only in one-fourth the number of cases where still photography would be possible. This proportion could be increased somewhat by using a lens of longer focus and so operating from a greater distance. This method of working, however, gives pictures which cannot compare with those taken, for instance, with a two inch lens, which I consider ideal. Moreover, it is impracticable to use the pictures obtained with a motion picture camera in any other way than on the screen . The very small images do not enlarge successfully, are somewhat harsh, and are not suitable for ordinary illustration.

It is apparent also that the average Nature photographer cannot possess a cinema projector to show his pictures, even could he afford to provide himself with copies of the film he exposes. On the other hand, it must be admitted that the day of the educational film is still before us, and that such subjects on the screen will be much more appreciated in days to come. And when the educational picture becomes popular it will provide one of the most efficient aids to bird protection, which, after all, is the basis upon which we should judge any system of bird photography.

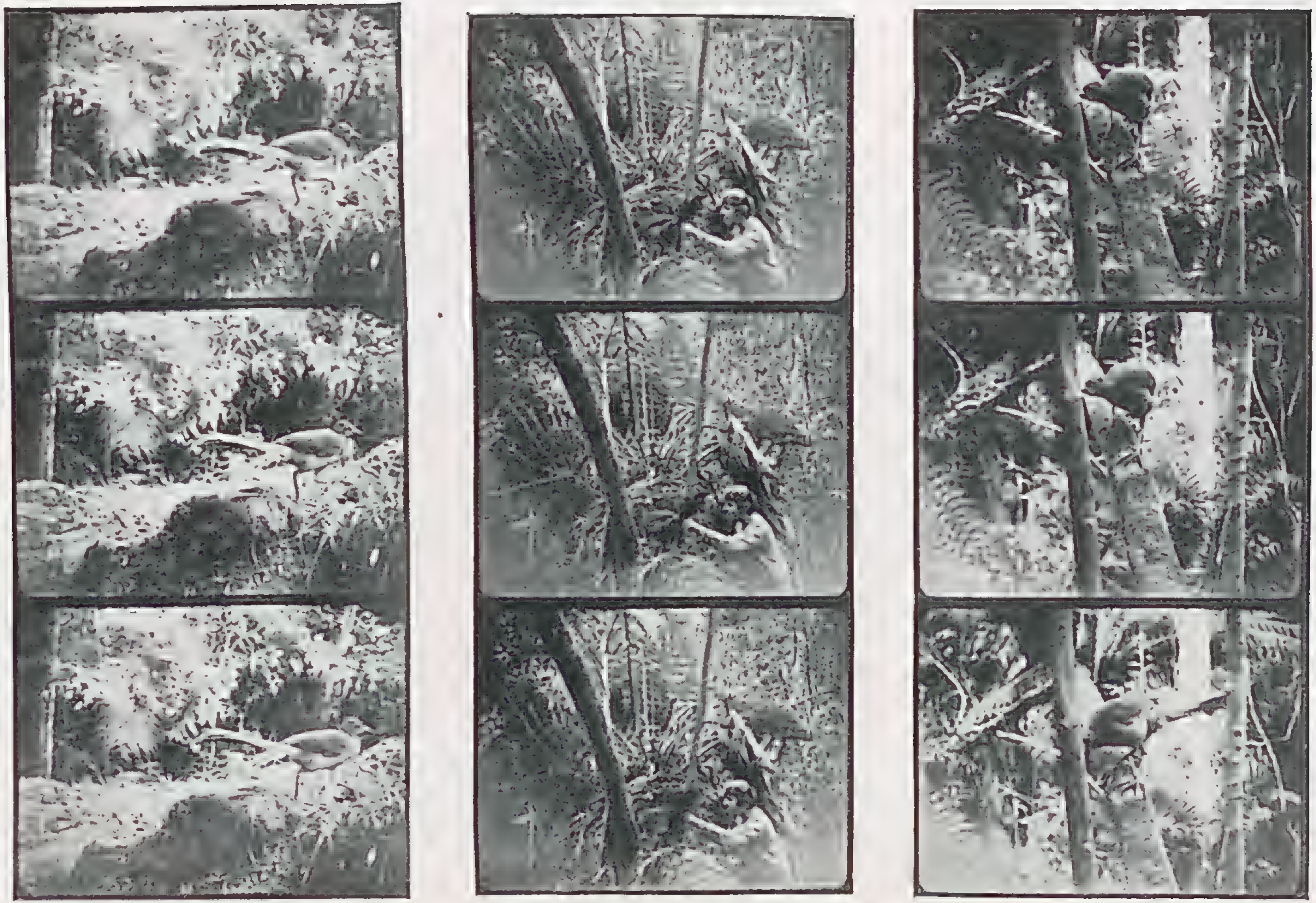
A " Bird Picnic " at Wallarobba, N.S.W.

By Neville W. Cayley, M.B.O.U.

Early in 1925 the New South Wales Branch of the R.A.O.U. received a letter from Mr. J. J. de Warren, of Dungog, written on behalf of a small band of bird lovers who were desirous of having their properties, situated in the county of Durham. N.S.W., jointly declared a sanctuary. He stated that their application, made to the Chief Secretary, had been refused, owing to an adverse report received from the police officer in charge of the district, and asked assistance from the R.A.O.U. in having this decision reconsidered.

Fortunately, the N.S.W. Branch was in possession of information sufficient to prove that the lands suggested as a sanctuary were important, inasmuch as the district is rich in bird life, some of the species listed being northern birds having the southern limit to their range in the locality. Another point stressed was that Barrington Tops, soon to be a world-renowned tourist resort, or better still, a National Park, are close to Dungog, and any body of enthusiasts wishing to protect the native fauna and flora of the surrounding districts should be encouraged. In view of these facts, the Minister reversed his previous decision, and proclaimed the area a sanctuary.

Wallarobba sanctuary consists chiefly of privately owned grazing and dairying properties, situated in the parishes of Wallarobba, Fingal



FEMALE LYRE-BIRD: 1—TAKING HER EASE. 2—TRUSTFULNESS. 3—DESCENDING A LIMB.
Enlargements from film by R. T. Littlejohns. (Negatives lent by Herschell's Pty., Ltd.).

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" BIRD PICNIC " GROUPS, WALLAROBBA.

Photos. by A. Musgrave.

and Dungog. The country is mostly cleared and well watered by numerous creeks, feeders of the beautiful Williams River, which follows a winding course through most of the area, and whose banks, clothed in a luxuriant growth of vegetation, harbour many species of birds. Apart from the river flats, the country is undulating, with timbered ridges and a few isolated brushes lying well back amongst the hills, the latter teeming with bird life.

This small band of enthusiasts, wishing to celebrate the creation of their sanctuary, and at the same time give others an opportunity of visiting the area, organised a " Bird Picnic " and an invitation was extended to members of the R.A.O.U. to join in the outing. This invitation was accepted, of course, and on Friday, 30th October, 1925, a party consisting of Mr. and Mrs. A. S. Le Souef, Dr. E. A. D'Ombrain, and Messrs. E. J. Bryce, A Musgrave and N. W. Cayley left Sydney by train, arriving shortly after midnight at Dungog, where they were met and motored to the homes of their hosts. Messrs. J. K. Mackay, of "Cangon," G. B. Waller, of Wallaroba, T. M. Hooke, of " Cooks Park," and G. A. Smith, of "Munni," were our hosts, and their hospitality, for which the residents of the district are renowned, was greatly appreciated by the visitors.

Bird observing started at daybreak on Saturday, quite good lists being obtained about the different homesteads before the packed cars left to spend the day in Stony Brush, on Mr. G. B. Waller's property at Wallarobba. Here the party was joined by Messrs. W. J. Enright, S. A. Hanscombe, McInnery, and Wilkes, from West Maitland; the gathering numbered thirty in all. Under the capable leadership of Mr. de Warren, a most enjoyable day was spent amongst the birds, a list of 86 species being observed. This number was increased on the following day, and on the return trip by train as far as Newcastle, to 122 species. Several nests were found, and a nest of the Wedge-tailed Eagle (*Uroaetus audax*) was visited. This nest is a huge structure built high up in a tall dead tree, and measures roughly about 20 feet in height by about 5 feet in breadth, and weighs fully a ton, while another ton of sticks litters the ground below. Mr. Waller informed us that the nest has been in existence, to his knowledge, for 50 years. A half-eaten ring-tailed opossum was found lying on the ground beneath it, but it was impossible to see into the nest, even with field glasses, so we could not tell whether it contained young or not.

The majority of the species observed were fairly plentiful, and common to the eastern districts of New South Wales. Records of importance were the Whiteface (*Aphelocephala leucopsis*), a new record for the locality, and two descriptions of birds previously observed by Mr. De Warren, one of a Parrot which agrees with the Turquoise Parrot (*Neophema pulchella*), the other with the Plain Wanderer (*Pedionomus torquatus*). Unfortunately, these two rare species were absent during our visit, so we were unable to verify the records. Other species of interests to the visitors were the Rainbow-bird (Bee-eater) (*Merops ornatus*), Channel-bill Cuckoo (*Scythrops novaehollandiae*), Rufous Song-lark (*Cinclorhamphus mathewsi*), Blue-faced Honey-eater (*Entomyzon cyanotis*). and the Bush-lark (*Mirafra horsfieldi*).

Mr. Enright, who is interested in orchids, found many species, no less than five growing on one tree; and Mr. Musgrave, the entomologist of the party, had a profitable time collecting specimens; he was ably assisted by the younger members of both sexes.

Mr. Waller said that Brush Turkeys, once plentiful in the district, are now only found out back. He mentioned also that he once saw a Plain Turkey (Bustard) in a paddock near West Maitland.

At night the party, considerably reinforced by residents of the district, forgathered in the Memorial Town Hall, Dungog, where Mr. Le Souef gave a short discourse on Australian mammals, followed by a lantern lecture on birds by Mr. Cayley, supported by Dr. D'Ombrain and Mr. Musgrave. Each speaker referred to the successful day's outing and complimented Mr. de Warren, the organiser of the visit, and his co-workers on the excellent arrangements made for their entertainment. The visitors also congratulated those responsible on having their properties proclaimed a sanctuary, which they felt assured would repay them a thousand-fold by the benefits derived from encouraging birds about their homes.

Birds Introduced into New South Wales.*

BY E. C. CHISHOLM, M.B., Ch. M., R.A.O.U., Comboyne, N.S.W.

AT the present time nine species of introduced birds are thriving in New South Wales, seven of them from Great Britain and two from India. They are:—House Sparrow (*Passer domesticus*), Tree Sparrow (*Passer montanus*), Goldfinch (*Carduelis carduelis*), Greenfinch (*Chloris chloris*), Starling (*Sturnus vulgaris*), Skylark (*Alauda arvensis*), Blackbird (*Merula merula*), Indian Turtle-Dove (*Streptopelia chinensis*). and Red-whiskered Bulbul (*Otocompsa emeria*).

Thirty years ago another introduced bird, the Indian Myna (*Acridotheres tristis*), was fairly common about Sydney, but it seems to have quite disappeared. It would be interesting to know the cause of its disappearance for it seemed to be doing well and had increased considerably for some years.†

House Sparrow (*Passer domesticus*). This bird appears to have been liberated in New South Wales and Victoria independently and at separate times, possibly more than once. In Victoria apparently the bird was introduced about the early sixties of last century. My father, the late Dr. Edwin Chisholm, while practising at Camden, N.S.W., wanted a pair of Sparrows for an aviary and about the year 1866 or 1867 he wrote to the Acclimatisation Society of Victoria asking if they had a pair to spare; they replied that they could let him

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*See also "Introduced Birds in Queensland," by A. H. Chisholm, *Emu*, Vol. XIX, p. 60, 1919.

†The Indian Myna has not disappeared from Sydney; it may be seen fairly freely about Moore Park and the Eastern Suburbs. Curiously, however, it never seems to thrive here as it does in Melbourne or even on the sugar-fields of North Queensland, where it was taken to combat the cane beetle.—EDITOR.

have a pair for £5. This seems almost incredible to us now, seeing how ubiquitous this bird is.

Many controversies have taken place as to whether the House Sparrow is a pest or not. I, for one, am in its favour, seeing that it feeds its young almost entirely on insects, including many noxious ones, such as grasshoppers and aphides, and is largely insectivorous when adult. As to its fruit-eating propensity, I do not think that ordinarily it does much damage in this respect, though I have noticed that in the hot dry parts it takes to fruit more readily on account of the moisture it contains. Moreover, it is said to feed on the larvae of the bot-fly, and in certain parts of New Zealand is credited with practically exterminating this pest. When one calls to mind its habit of feeding amongst horse refuse one can readily understand this to be quite feasible. It is more of a pest in the pastoral and agricultural districts, where its food consists largely of grain. On the whole, I think the balance is decidedly in its favour. Curiously enough, the House Sparrow was said to have been introduced in mistake for the Hedge Sparrow (*Accentor*), an insectivorous, soft-billed bird which would have been a good friend all round.

While on a visit to Toowoomba, Queensland, in 1903, I noticed a small flock of about a dozen Sparrows in the town and was told that only a few weeks before they had been seen for the first time.* At Comboyne, on the Central North Coast, at the time of writing (November 1925) the House Sparrow is unknown. This is about the only town visited in New South Wales in which I have not found it.

Tree Sparrow (*Passer montanus*). This bird is very like the House Sparrow, but smaller, and differs in having the whole of the top of the head rufous, while the House Sparrow has only two lines on each side of the head of this colour. Another distinguishing feature consists in *P. montanus* having a patch of black feathers behind the ear which is wanting in *P. domesticus*. Both sexes have the black throat, which does not extend so far on the breast as in the House Sparrow. The breeding habits appear to be the same in both, and the two birds frequently associate together. It is not known near Sydney and is only to be found in the Southern parts of the State, especially the Riverina, in some parts of which it is nearly, if not quite, as common as the House Sparrow, and it can only be a matter of time before it spreads north to Sydney and right through the State. I first came across this bird about 26 years ago at Junee, N.S.W. It would be of great interest if any member of the Ornithologists Union could give any information as to the date of its introduction and by whom. From its distribution it would appear to have come from Victoria. This species is really Asiatic in origin but Europeanised for centuries.

Goldfinch (*Carduelis carduelis*). Like the House Sparrow, this bird has spread over the whole State. I have come across it in the most outlying parts, *e.g.*, in the mountains around Tumbarumba and all through the Riverina. As a boy, 40 years ago, I shot one of a small flock at Ashfield in the belief that the birds were Sparrows, so it evidently had a good hold then. In Tasmania 18 years ago the Goldfinch was to be seen in large flocks in the North; I think I may safely say I have seen 200 in a flock, feeding on the scotch thistle, thereby doing an immense amount of good. In fact, this bird is of decided economic importance. I have never seen it in such large flocks in New South Wales. So far this species has not appeared on the Comboyne Plateau.

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*The House Sparrow is now common in Queensland towns as far north as Rockhampton.—EDITOR.

Greenfinch (*Chloris chloris*). The Greenfinch was thriving in the neighbourhood of Sydney thirty years ago. On one occasion at Ashfield I found a nest of three fully-fledged young. It now seems to have disappeared entirely from the neighbourhood of the capital, but is said to be common about Bathurst.

Starling (*Sturnus vulgaris*). I do not know the date of introduction of this bird. Forty years ago I don't remember ever seeing it about Ashfield, where I lived at that time. It has increased to an enormous extent and is now found nearly everywhere in New South Wales. I have studied this bird with interest and am quite satisfied that it is decidedly beneficial. It feeds largely in the open on the ground upon grasshoppers, beetles, and other ground insects, though at times it will attack fruit freely, but this is by no means the rule. I have been living in a district where there were countless numbers of the birds, and although I had an orchard I never once saw a bird there attacking the fruit, and this experience extended over several years. Cut-worms, which are great pests, form part of the food of this bird. It nests very freely, breeding two or three times in a season, seeming to prefer the spouts of hollow trees for the purpose. All the young of the season from a large area flock together, so that when the breeding season is over one notices a decided increase in the number of birds. Being the hosts of lice they are undesirable birds when building their nests about a house. I have known walls to be swarming with these insects from this cause. One of the Starling's worst offence consists in its robbing indigenous species of their nesting sites in hollows.

Skylark (*Alauda arvensis*). Common about the parks and racecourses around Sydney and in the open spaces about Parramatta. I have come across the Skylark also about Camden. While living at Picton, from 1915 to 1919, I did not see it there until 1917. A pair appeared then, and it was a delight to watch them soaring and hear the song of the male on the wing. They had increased by next year to several pairs. I am afraid their chance of survival is poor, as nesting and roosting on the ground they are easy victims for cats and foxes.* It is said to have been introduced about Sydney in the early seventies.

Blackbird (*Merula merula*). I have only seen this at one place in this State (N.S.W.), and that was at Albury, on the Southern border, where I saw several pairs in the Botanic gardens.* I was told that the English Song Thrush (*Turdus philomelos*) was introduced there at the same time but gradually disappeared, until now there is not one to be seen. This is often wrongly called *T. musicus*, a winter migrant to Great Britain.†

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*They were still to be seen at Camden in 1924.—EDITOR.

Indian Turtle-dove (*Streptopelia chinensis*). This bird has increased tremendously during the last few years and is extending its range considerably. I have met with it as far west as Faulconbridge, on the Blue Mountains. It is very numerous about the western suburbs of Sydney where it nests freely. I don't know the history of its introduction. Its food consists of seeds of various plants and grasses, obtained on the ground, with possibly a small percentage of insects.

Red-whiskered Bulbul (*Otocompsa emeria*). This is a comparatively recent introduction. I first saw the species 10 or 11 years ago at Ashfield, in a small company of four or five, and I have several times since seen them in the same locality and also at Neutral Bay, showing a fairly wide distribution about the suburbs of Sydney. It would be interesting to learn of their origin here, whether liberated accidently or deliberately. This is a soft-billed, insectivorous bird, though it has a partiality for fruit, attacking many orchard kinds, but, like most fruit-eating birds, it probably does a great deal more good than harm. Take for example one of our own fruit-eating birds the Silvereye (*Zosterops lateralis*). I question whether we have a more useful insectivorous bird than it is, eating aphis, scale insects, the codlin moth and a host of other harmful kinds, including caterpillars, all of which comprise its main food all the year round, while, for a few months of the year, it attacks orchard fruit.

The subject of introduced birds is of great interest and economic importance. It requires a wise discrimination and a knowledge of the habits of the species to be introduced. It has always been a puzzle to me that more insectivorous birds have not been introduced, as, for example, the English Nightingale, which probably would have done well here and being a bird of sombre coloring would not have been conspicuous enough to attract the attention of enemies, thus having a good chance of survival, and being wholly insectivorous would have been beneficial.‡

I admit that our own birds are probably preferable in every way to introduced ones for dealing with the active insect pests, and should be rigorously protected; but since so many insectivorous species are being ruthlessly destroyed, and in consequence insect pests are on the increase, it may become necessary to introduce foreign species to take their place.

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*The Blackbird has been seen also in Sydney Botanic Gardens.—EDITOR.

†*Vide* " Useful Birds of Southern Australia," p. 296, by Robert Hall, F.L.S.

‡Is there not a record of Nightingales having been introduced into Victoria many years ago? We seem to remember such a statement, but there is no mention of it in Colonel Ryan's presidential address to the R.A.O.U. on introduced birds, *Emu*, Vol. V., 1906, p. 110.—EDITOR.

Hunting Trick of the Man-o'-War Hawk. (*Fregata minor*).

BY CHARLES HEDLEY, F.L.S.

THE position of Bramble Cay is easily described as being the most remote scrap of Australian territory in the right top corner of the map. Its name has nothing to do with blackberries, but keeps in mind a small vessel which served as tender to the "Fly" and the "Rattlesnake" and ultimately ended her career as a lightship in Sydney Harbour.

It is nearly a century since Jukes and MacGillivray wrote about Bramble Cay, but there has been no change in that desolate, treeless and waterless sand bank since then.

Landing in the breeding season, a visitor encounters a mass flight of Terns and Noddies. A thousand wings of frantic, dancing, diving, soaring birds beat close round him till the whizzing, screaming torrent almost makes him giddy. From afar, the effect is that of smoke streaming off a bush fire; but at hand, it is as if every leaf in the forest had suddenly started into life and spun off with a shriek into the whirlwind.

The Boobies do not share in the more intimate association of the smaller birds. Neither do the Silver Gulls join in the clamour, which for them means an opportunity for plunder.

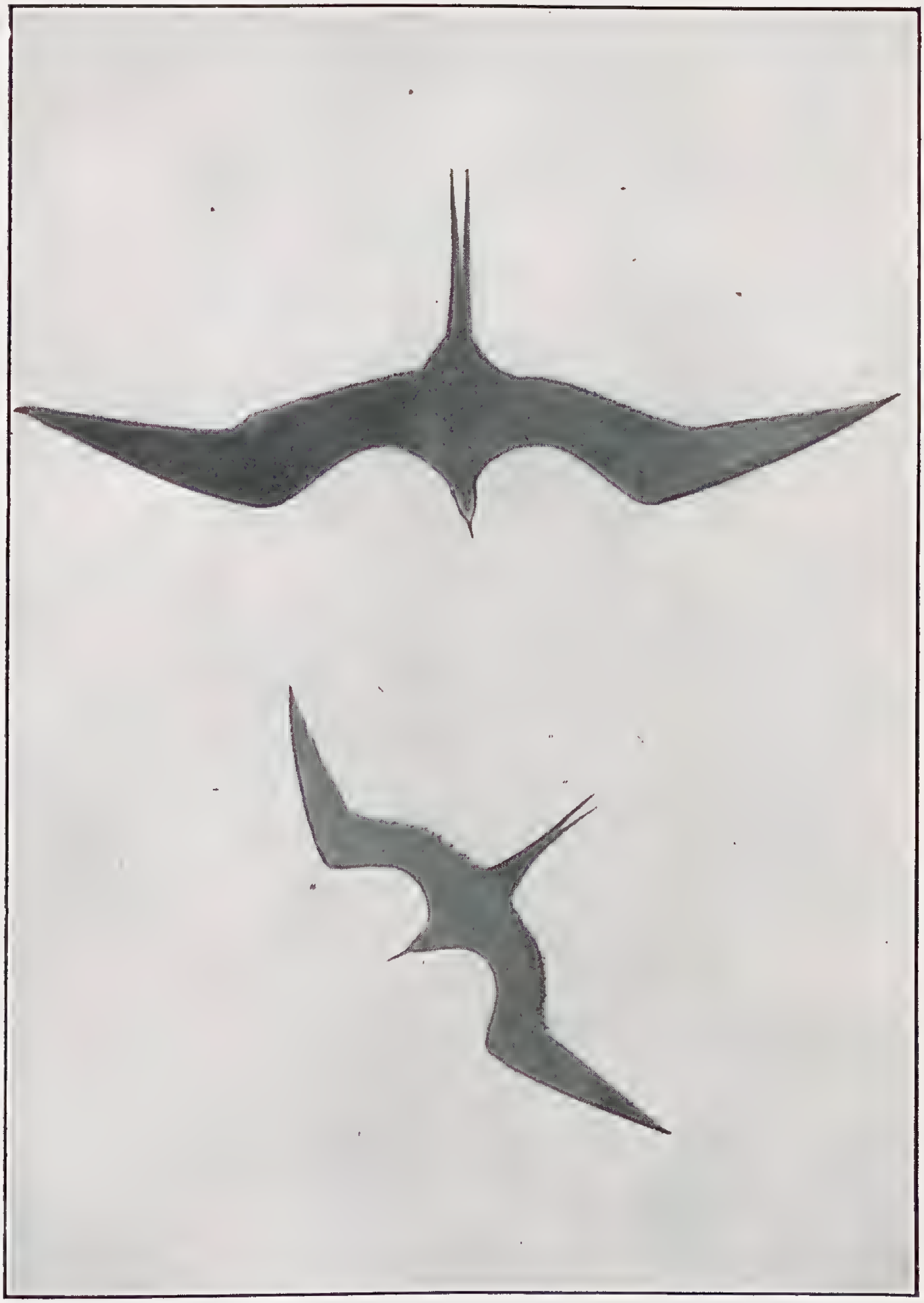
Like thieves working through a racecourse crowd, a solitary Gull, alert and impudent, will deliberately stalk along a given beat. One bird he will bully, but before a party he will quail. If a nest should be left unguarded for an instant that Gull will dart in and seize the egg or chicken.

This is the slave community over which the Man-o'-War Hawk tyrannises.

During September and October, 1924, the Government set up a beacon on Bramble Cay. By the kindness of the Lighthouse Department and of the officer in charge, Mr. I. M. Cowlishaw, I received permission to accompany the construction party for the purpose of scientific observation.

Strolling along the beach, a Tern hopped painfully away from me and I observed that it was dragging a broken wing. It lingered around for a few days and then disappeared, having died, probably, from starvation. Its place was soon taken by a crippled Noddy, which also shuffled about in misery for a few days and then vanished. Almost as often as not there might be seen on the beach a bird with a broken wing, usually a Tern or a Noddy, and rarely a Booby, but not a Gull.

At first I supposed that the workmen engaged in erecting the beacon had attacked them, but on enquiry I found that these men had kindly feelings for the birds and did them no harm. Reviewing the injuries, it seemed as if they were not the result of a chance blow, or from stone throwing, because the legs, the head or the body were never hurt, only the wings, either left or right, were injured, and the



THE AERIAL HUNTERS: "MAN-O'-WAR HAWKS" ALOFT.

Photo. by Charles Hedley.

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injury of numerous wounded birds was confined to a dislocation of any joint of either wing.

At almost any time a Frigate-Bird could be seen from Bramble Cay, sometimes a pair, sometimes a dozen, sometimes sailing almost out of sight overhead, sometimes sweeping down almost to the beach. Poles erected by our party were accepted as perches, but their usual roost was on high volcanic rocks a little distance from the sand bank.

Now and then a tyrant was seen levying his due. Detecting a laden fisher bringing home a catch for his family, the Man-o'-War Hawk would dart at his victim. Generally the demand was met by the vomit of a fish or two. Then, quick as lightning, the Frigate-bird would drop and catch a fish in mid-air. Another he would perhaps scoop off the surface of the water while still in flight.

But when his demand is refused, the robber takes stern measures. I saw close at hand a Booby being thus handled. At the speed of a hundred miles an hour the Frigate-bird swept down, overtaking him and crossing him close above. Just before his pursuer reached him, the Booby folded his wings and fell, not dived ; he tumbled into the sea as awkwardly as a bag of coals. That so superb a diver, so finished an acrobat, should drop headlong anyhow was a curious reversal of form. But the Booby had saved himself, for he immediately struggled out unhurt.

The attack of the Frigate-bird seems to be explained by the defence of the Booby. Since the eye could not follow the rapid dash of a hundred miles an hour, the detail must be deduced.

It was obvious that the Booby feared for his wing and withdrew it at all cost, and that in the second place he felt safe upon the water. Evidently the Booby anticipated that when passing across his back the Frigate-bird would snatch at a wing and break a joint with a jerk of his beak. Such had been the cruel fate of all the birds seen to perish miserably on the beach.

Elsewhere it has been recorded that a Frigate-bird induces his prey to yield him a fish by snatching with his beak and tipping up the pursued bird by the tail. Such an action is analogous to that of seizing the wing-tip, but less dangerous to the victim.

A Death-trap for Albatrosses.—" On the Australian coast there is a valley ending in a cliff-wall which is a regular death-trap for the local Albatrosses which pass over it on their way home to a breeding-ground. If, when coasting over this hollow, they dip between the walls, they lose the wind, begin to drop, and not having sufficient strength of wind-beat to ' get up steam ' in the limited space in front of them, end by colliding with the cliff at the end of the gully, when they fall to the ground to die a lingering death from hunger, for the walls of the valley are too steep for them to climb, and they have not enough intelligence and enterprise to explore a cave at the cliff-foot which would lead them out into the open again."—F. FINN, B.A., F.Z.S. in *Bird Behaviour*, London (no date), page 25.

[Can any reader say where this death-trap is situated or vouch for the truth of this story?—EDITOR.]

Records of Birds' Movements.

REPORT OF MIGRATION COMMITTEE FOR QUARTER ENDING 3/9/25*

BY MARC COHN, Convenor, Bendigo, VIC.

I HAD hoped to receive numerous offers of help after our first report appeared, but only received one from Mr. A. S. Le Souef, of Taronga Park, Sydney, and Mr. Gogerley, of Ellerslie, Lake Wallis, N.S.W.

During the quarter we have lost Districts 46 and 101., but gained District 141 (Mr. Serventy, of East Cannington, near Perth, Western Australia), and District 4 (Miss Galbraith, of Gippsland, Victoria). Members of this committee and district correspondents can help our migration scheme by persuading members known to them to become correspondents. Any suggestions for the advancement and improvement of these notes will be welcomed by the writer. If correspondents in the State capitals would call at their respective Weather Bureaus we would secure some very useful information.

District No. 2. The quarter has been dry and cold, which was probably the cause of the late arrival of the migrants. The resident birds appear to have restricted their breeding and in many cases, particularly that of the Yellow-tufted Honey-eater, which is the commonest bird in the district, to a be month late in starting.

District No. 4. is one of our new districts ; it comprises the country eight miles west of Tyers Creek and eight miles north of the Latrobe River, near Yallourn, in Gippsland, Victoria. The country is river scrub, open river flats rising to partly cleared and finally to heavily timbered hills. The quarter was cooler than usual, which was probably the cause of the late arrival of the Cuckoos.

District No. 44. The Spring was late : wet in the beginning and a few frosts of from 7-9 degrees. The Cuckoos, never very common, were even rarer this quarter. The Striped and Spiny-cheeked Honey-eaters have been feeding extensively on the small fleshy fruit of the salt bush used for garden hedges.

District No. 45. Dry Spring : only 11 inches of rain instead of 17 inches. Quail have become very scarce owing to lack of food : usually numbers breed during this quarter, but so far only one pair has been seen.

District No. 47. This will be Mr. Gogerley's district and should provide us with interesting notes.

District No. 81. The quarter has been unusually cold and dry; an unpropitious season for birds. Last year Mr. Jerrard noted Silver-eyes in his district for the first time ; this quarter of this year they were noted passing through but did not remain.

District No. 82. The quarter has been very dry, causing the migrants to arrive late and in smaller numbers than usual. The Brush Bronzewing Pigeons are increasing ; all other Pigeons are decreasing

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*For details of the location and area of Districts, see the Committee's first report, *Emu*, Vol. XXV., p. 104.

except the Topknots, which are very plentiful when the wild figs are ripe. It is Mr. Page's opinion that domestic cats gone wild and the pea-rifle are the causes of the decrease.

District No. 141 is within a radius of five miles from the Cannington railway station, immediately south of the Swan River, near Perth, Western Australia. It is bordered on the east by the Darling Ranges and on the west by heavily timbered swamps. The main area is lightly timbered with marri, banksia; and jarrah. There are large tracts of open country. The flats are wet in winter.

The quarter was unusually dry. Mr. Serventy reports that the Nankeen Kestrel, Dusky Wood-swallow, and the introduced Senegal Dove (which is very common in Cannington) have all been seen feeding on flying ants. Owing to the dry weather in western Australia, the Emus have been forced south and west.

Brush Turkey (*Alectura lathami*). These birds have increased in district 81. Mr. Jerrard suggests as the reason the fact that the scrubs have become infested with the prickly pear, which provides food for the birds and deters the shooters. The Turkeys began to make up nest-mounds in the third week of September.

Stubble Quail (*Coturnix pectoralis*). Increasing in district 82. Thousands seen during the winter.

Black-breasted Quail (*Turnix melanogaster*). Two—probably a pair—were seen in district 81 on 13/6/25 and subsequently throughout the quarter at the same spot in thick scrub.

Topknot Pigeon (*Lopholaimus antarcticus*) Very plentiful in district 82 when the wild figs are ripe.

Brush Bronzewing (*Phaps elegans*). Increasing in district 82.

Black Moor-hen (*Gallinula tenebrosa*). Not nearly so common in district 2 as usual.

Coot (*Fulica atra*). Not nearly so common in district 2 as usual.

Red-kneed Dottrel (*Erythrogonys cinctus*). Absent from district 2 this quarter.

Double-banded Dottrel (*Charadrius bicinctus*). Reported as having been seen in district 2, but not seen by the writer.

White-headed Stilt (*Himantopus leucocephalus*). A flock of between 200 and 300 were seen on a shallow swamp in district 46 on 31/8/25. They were still there on 31/9/25. In district 2 they were very rare during the quarter owing to most of the swamps drying up.

Sharp-tailed Sandpiper (*Pisobia acuminata*). Rare in district 2 this quarter.

Australian Snipe (*Gallinago hardwicki*). A flock of about 200 was seen on a timbered swamp in district 46 on 30/8/25.

Brolga (*Antigone rubicunda*). A pair was seen at Raywood in district 2 on 6/9/25. This pair breed there every year.

Straw-necked Ibis (*Threskiornis molucca*). Seen in great numbers in district 82 on 22/9/25. A small flock arrived in district 81 on 7/9/25.

White-faced Heron (*Notophoyx novae-hollandiae*). Not so common as usual in district 2.

White-necked Heron (*N. pacifica*). One seen in district 2 on 13/8/25.

Yellow-necked Mangrove-bittern (*Dupetor gouldi*). Found breeding in district 141. Rare.

Black Swan (*Chenopis atrata*). Sixty were seen on the Crusoe Reservoir on 13/8/25; forty on 20/8/25 but only one a month later. It is very unusual to see any Swans on the reservoir, but in some years half-a dozen are seen. Evidently the dry year is the cause of their visit.

Chestnut-breasted Shelduck (*Tadorna tadornoides*). About 20 were seen at Raywood, in district 2, on 6/9/25.

Musk Duck (*Biziura lobata*). Three were seen on the Crusoe Reservoir in district 2 on 13/8/25. They have not been reported as visiting there before.

Wedge-tailed Eagle (*Uroaetus audax*). A pair were seen by Mr. Page in district 82 attacking a fox about 200 yards from the nearest cover. The fox was knocked over three or four times, and appeared to be very weak before he reached the cover.

White-tailed Black Cockatoo (*Calyptorhynchus baudini*). Flocks of about 6 to 20 birds passed southwards through district 141 from 19/7/25 onwards.

Quarrion (*Leptolophus hollandicus*). Small flocks noted in district 81 at the beginning of July and end of Sept.

Broad-billed Roller (*Eurystomus orientalis*) Arrived in distrct 81 on 20/9/25

Forest Kingfisher (*Halcyon macleayi*). Arrived singly in district 81 during the second week of August.

Sacred Kingfisher (*Halcyon sanctus*). In district 41 the first one was noted on 21/9/25. This bird usually arrives in the Sydney district about the first week of September. The migration south appears to be later this year, because none has been seen in district 2 yet. A few arrived in district 82 on 20/9/25. They were first noted in district 141 on 13/9/25.

Rainbow-bird (*Merops ornatus*). Arrived in district 81 during the first week of August. A great number arrived in district 82 on 17/9/25. Arrived in district 83 on 27/9/25.

Pallid Cuckoo (*Cuculus pallidus*). The first was seen in district 2 on 18/8/25. One heard calling in district 4 on 30/8/25. A few were seen in district 44 on 8/7/25. Seen in district 45 on 20/9/25. Occasional birds have been noted since 2/9/25 in district 46. Arrived in district 81 on 14/9/25. Seen in district 82 on 28/9/25; very scarce this spring. Seen in district 110 on 1/8/25. First seen and heard calling in district 141 on 7/6/25.

Fan-tailed Cuckoo (*Cacomantis flabelliformis*). First seen in district 2 on 28/8/25. Heard calling in district 4 on 7/9/25. Seen in district 82 on 12/8/25; very scarce.

Narrow-billed Bronze Cuckoo (*Chalcites basalis*). In district 2 the first was seen on 30/6/25, and a pair was seen mating on 9/7/25. Heard calling in district 4 on 9/9/25. Seen in district 82 on 2/9/25; very scarce. Arrived singly in district 141; the first on 5/6/25.

Bronze Cuckoo (*Lamprococcyx plagosus*). Seen in district 44 on 26/8/25. Present in district 81 throughout the quarter. A few were seen in district 82 on 1/9/25.

Welcome Swallow (*Hirundo neoxena*). A large number remained in district 4 throughout the year but the numbers appeared to be greater on 7/9/25. Large numbers also remained tn district 44 throughout the winter. In district 45 the first Swallows were seen on 7/9/25. Numerous in district 46 since July. Present throughout the quarter in district 81. A great number were seen in district 82 on 9/8/25.

Tree Martin (*Hylochelidon nigricans*). In district 46 one flock was noted in mid-September. In district 141 flocks have been seen passing south since 20/5/25.

Fairy Martin (*H. ariel*). Large numbers arrived early in September in district 44. Arrived in district 45 on 7/9/25. Noted at the end of August in district 46. A great number were seen in district 82 on 1/9/25.

Scarlet Robin (*Petroica multicolor*). In district 2 these birds are always very numerous in the Autumn, Winter, and early Spring; but then leave to breed elsewhere. This year all had left by 31/9/25 except one pair, which it was thought might remain to breed, but left on the 27/10/25.

Flame Robin (*Petroica phoenica*). All had left district 2 by 31/9/25.

Red-capped Robin (*P. goodenovii*). Remain in district 2 all the year. Numerous in district 44 during July and early August. They have not appeared in district 81 this winter.

Rose Robin (*Erythrodryas rosea*). Have not appeared in district 81 this winter.

White-throated Warbler (*Gerygone olivacea*). Flock seen in district 4 on 10/9/25.

Leaden Flycatcher (*Myiagra plumbea*). Mr. A. S. Le Souef reports that one bird spent the season 1924-1925 in and about Taronga Park in district 41.

Shining Flycatcher (*Piezorhynchus alecto*).* Mr. A. S. Le Souef reports having seen this bird every spring in district 41 for the past few years. It may stay

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*This is quite a wrong identification. The Shining Flycatcher is purely a tropical bird, rarely recorded below North Queensland. Perhaps Mr. Le Souef's bird was the Satin Flycatcher (*Myiagra cyanoleuca*).—Editor.

for a few days or pass quickly south. Arrivals noted on 15/10/24 and 14/10/25. They were male birds only. He has noted pairs breeding every year between the elevation of 3,5000 and 5,000 feet between Thredbo river and the Hotel Kosciusko in December.

Black-faced Cuckoo-shrike (*Graucalus novae-hollandiae*). Seen in small numbers in district 2 during July. First seen in district 4 on 4/8/25. Mr. Le Souef reports that one bird was noted going south through Mosman in district 41 on 14/10/25. Only a few about district 44 on 19/7/25. First seen in district 45 on 22/9/25. One seen in district 1 on 11/7/25. A few seen in district 82 on 10/9/25.

White-shouldered Caterpillar-eater (*Campephaga tricolor*). On 31/9/25 one male was seen in district 2. They are not so numerous this year as usual. Seen in district 82 23/9/25 ; very scarce this year. The first was heard unusually early in district 141 ; 30/8/25.

Brown Song-lark (*Cinclorhamphus cruralis*). Numerous in district 44 on 19/8/25.

White-fronted Chat (*Epthianura albifrons*) Nested very late in district 2 this year. First nest found on 6/8/25. Common in district 4 on 19/9/25. Seen in district 82 on 25/8/25 ; very scarce.

Australian Reed-warbler (*Acrocephalus australis*). One seen in district 1 on 30/9/25. Arrived in district 2 on 7/9/25. Fairly numerous in district 44 on 16/8/25. Seen in district 82 on 25/9/25 ; very scarce.

White-breasted Wood-swallow (*Artamus leucorhynchus*). In district 81 a few were seen in company with a flock of *A. superciliosus on* 2/9/25, but have not been seen since.

White-browed Wood-swallow (*A. superciliosus*) Numerous in district 4 on 9/9/25. Numerous in district 46 since early Sept. Flock seen in district 81 on 2/9/25.

Dusky Wood-swallow (*A. cyanopterus*). One seen in district 1 on 6/8/25 and two on 20/9/25. The birds arrived in district 2 in two migration waves this year; the first on 23/8/25 and the second on 15/10/25. First seen in district 45 on 15/9/25. Observed catching " flying ants " in district 141.

Grey-breasted Silvereye (*Zosterops lateralis*). Found breeding in district 1 on 6/10/25. In district 2 a pair was found feeding themselves and their young on the box-thorn berries. The same partiality for these berries has been noticed before in this district. In district 4 they were seen feeding on the white scale insects of *Acacia verniciflua*. A small flock was seen in district 81 on 30/8/25. They did not remain as they did last year.

Mistletoe-bird (*Dicaeum hirundinaceum*). Not as numerous in district 2 as usual. Male bird seen near Mr. Serventy's house in district 141 on 2/8/25 and subsequently haunted the vicinity. This is the first record of it in the district. It was seen pecking at the red berries of the pepper-tree. Mr. Cohn noticed these birds feeding on the same kind of berries at Charters Towers in 1919.

Striped Honey-eater (*Plectorhyncha lanceolata*) Fairly common in district 44 on 23/7/25 and feeding on the fruit of a salt-bush.

Scarlet Honey-eater (*Myzomela sanguineolenta*). Present throughout the quarter in district 81.

Regent Honey-eater (*Zanthomiza phrygia*). This Honey-eater, usually very common in district 2, is present in very small numbers this year in the town only. In other years they have been numerous and bred freely in both town and bush. They commenced to arrive on 19/7/25. In district 4 one was heard on 6/9/25.

White-eared Honey-eater (*Meliphaga leucotis*). Not seen nor heard in district 2 since 31/8/25.

Yellow-plumed Honey-eater (*M. ornata*). Not seen nor heard in district 2 since 31/8/25.

Noisy Miner (*Myzantha garrula*). Is not as numerous in district 4 as usual.

Red Wattle-bird (*Anthochaera carunculata*). Not so numerous as last year in district 2, and not nesting as freely as usual. Occasional flocks seen passing southwards in district 141 since 2/8/25. It is Mr. Serventy's opinion that these birds are not residents of his district, but birds of passage from other parts.

Spiny-cheeked Honey-eater (*Acanthagenys rufogularis*). Feeding extensively on the small fruits of a salt bush in district 44.

Australian Pipit (*Anthus australis*). Increased in numbers in district 4 on 9/9/25. Not numerous in district 44 on 16/8/25.

Diamond Firetail (*Zonaeginthus guttatus*). A few years ago very rare in district 81, but now becoming common.

Olive-backed Oriole (*Oriolus sagittatus*). Pair found nesting in district 2 on 18/9/25.

Spotted Bower-bird (*Chlamydera maculata*). Began to repair and to redecorate old bowers during the latter half of August.

Black-backed Magpie (*Gymnorhina tibicen*). Noted feeding on mice in district 46.

Remarks on *Gracula melanocephala,* Latham.

BY GREGORY M. MATHEWS, F.R.S.E., England.

BY the kindness of the trustees of the Natural History Museum, South Kensington, I am able to reproduce a copy of the type of *Gracula melanocephala* Latham, Index Ornith. Suppl., p. xxviii, 1801. (after May 30th). I think it will be generally agreed that the picture represents the familiar Noisy Miner or Soldier bird of New South Wales. The only defect in the original painting is the absence of the yellow patch behind the eye. Considering the time when this painting was made (over a century and a quarter ago) it is a splendid one and leaves no doubt as to what bird it is.

Latham says : " I am indebted to General Davies for the knowledge of this species, having been brought from Port Jackson by Governor King."

Gracula melanocephala was described by Latham in English as :—Length nine inches ; bill yellow, a trifle bent, and stouter at the base than is usual in the Thrush genus, though not greatly dissimilar ; the forehead is white, but the rest of the head black ; the throat, whole of the neck, and all beneath are white, but inclining to bluish in some parts ; the back, and all the wing coverts, without exception, are fine pale blue grey, with a trace of white across the lower part of the last ; the quills are dusky, edged with pale rust : tail three inches in length bluish ash colour, some of the outer feathers inclining to pale grey near the ends ; legs longish, scaly, of a pale yellow oker colour ; claws dusky and stout. Inhabits New South Wales.

On this description the name was founded :—*Gracula griseo-cærulescens subtus alba, capite nigro, fronte fasciaque tectricum albis ; long. poll. q. :—rostrum et pedis flavi.*

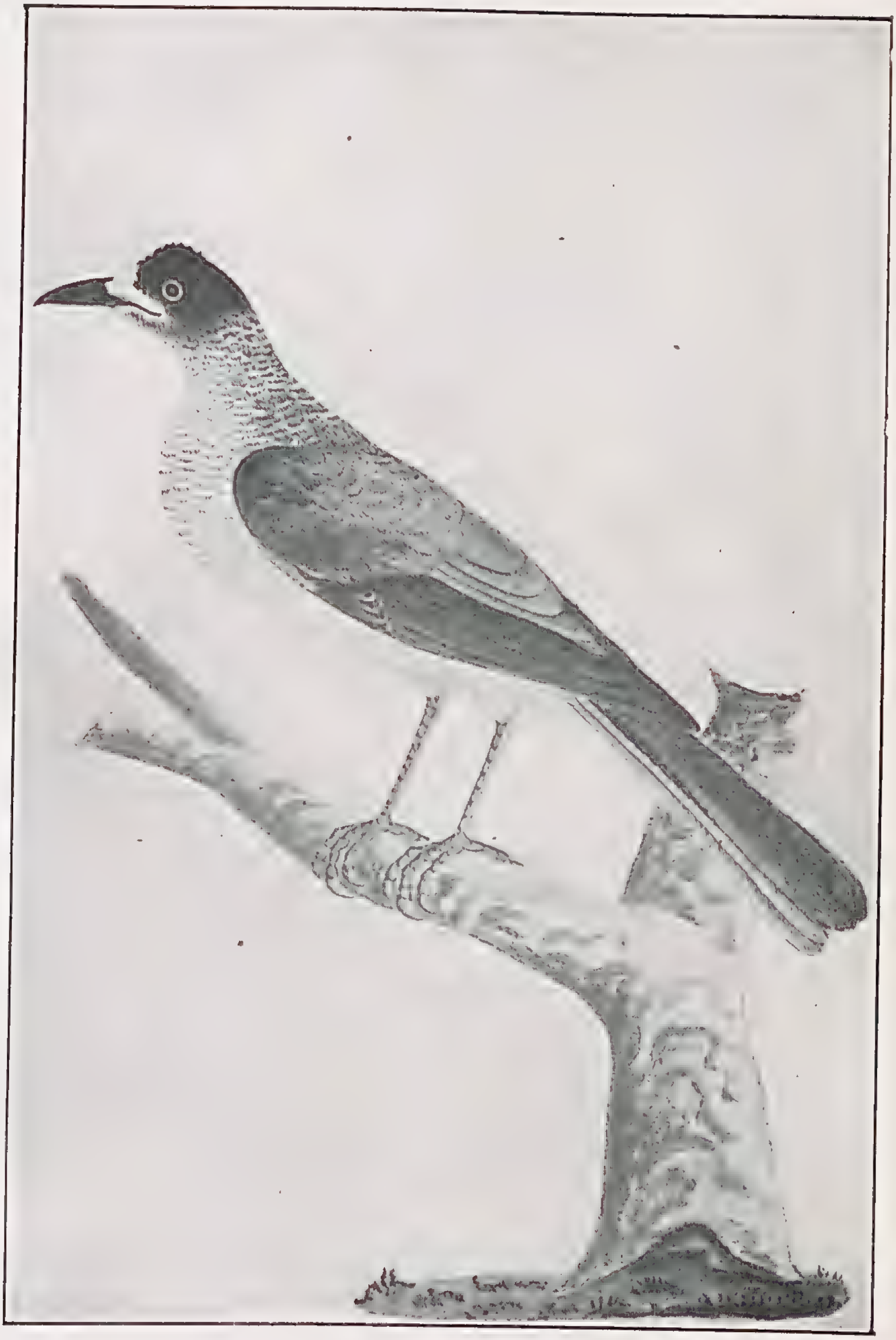


PHOTO. FROM WATLING DRAWING NO. 61; TYPE OF *Gracula melanocephala,* LATHAM.

NATIONAL MUSEUM MELBOURNE

The Rare Black-Breasted Quail.

BY C. H. H. JERRARD, R.A.O.U., Gayndah, Queensland.

IN *The Emu* for October, 1925, I was able to report the discovery of this nearly extinct species (*Turnix melanogaster*) in one of the "scrubs" here, during the winter of 1924. My next observation was made on 13th June, 1925, when, at nearly the same time of the year, and at exactly the same spot in the scrub, I again saw two of these Quails. They were running from me and I could not see their breast-markings clearly, but I believe they were males.

From that date to the time of writing this note, two or three of these shy jungle-dwellers have inhabited a small space of a few acres in an extensive softwood and vine scrub, being discoverable there by patient search at almost any time. The dense undergrowth and prickly-pear, however, make observation of such timid birds very difficult. More than once I have tracked them closely by their low, booming calls for an hour or two, without catching sight of them. On July 26th, however, I had a good view of a female scratching in characteristic manner, *i.e.*, turning as she worked, so as to leave a slight, saucer-like depression about a span in diameter. These little shallow pits, which thickly dot their feeding-ground, are good signs to look for when one is after the birds. On Nov. 19th I noticed them at a second place, deep in the scrub but more than a mile from the other habitat. At the same time I heard one or more of the birds calling, but could not see them.

The latter observation points to the existence of a second community of the same species, though of course the possibility of their wandering from place to place must be admitted. This is less likely, however, as they seem to me to have a very restricted habitat. Even when pursued they will not leave their little preserve, but double back and forth over it.

This Quail hardly ever flies. It will run a few yards ahead of you, carefully keeping out of sight. Only once have I flushed one. That was at nightfall, when the bird was probably "camped." It rose suddenly just in front of me and flew only a few yards. When I followed it made another short flight. This use of its wings may have been due to the confusion and semi-darkness. An inference worth noting is that they spend the night in the scrub at the place where they feed in the daytime.

Needless to say, I was keen to find a nest or other evidence of breeding, but up to the end of the year nothing of the kind was noticed. Considering the thoroughness of my search, I think it improbable that breeding took place, at least in the area under observation. The bevy of females which I saw on 10/7/24 has apparently dispersed, for I have seen only one black-breasted bird this season.

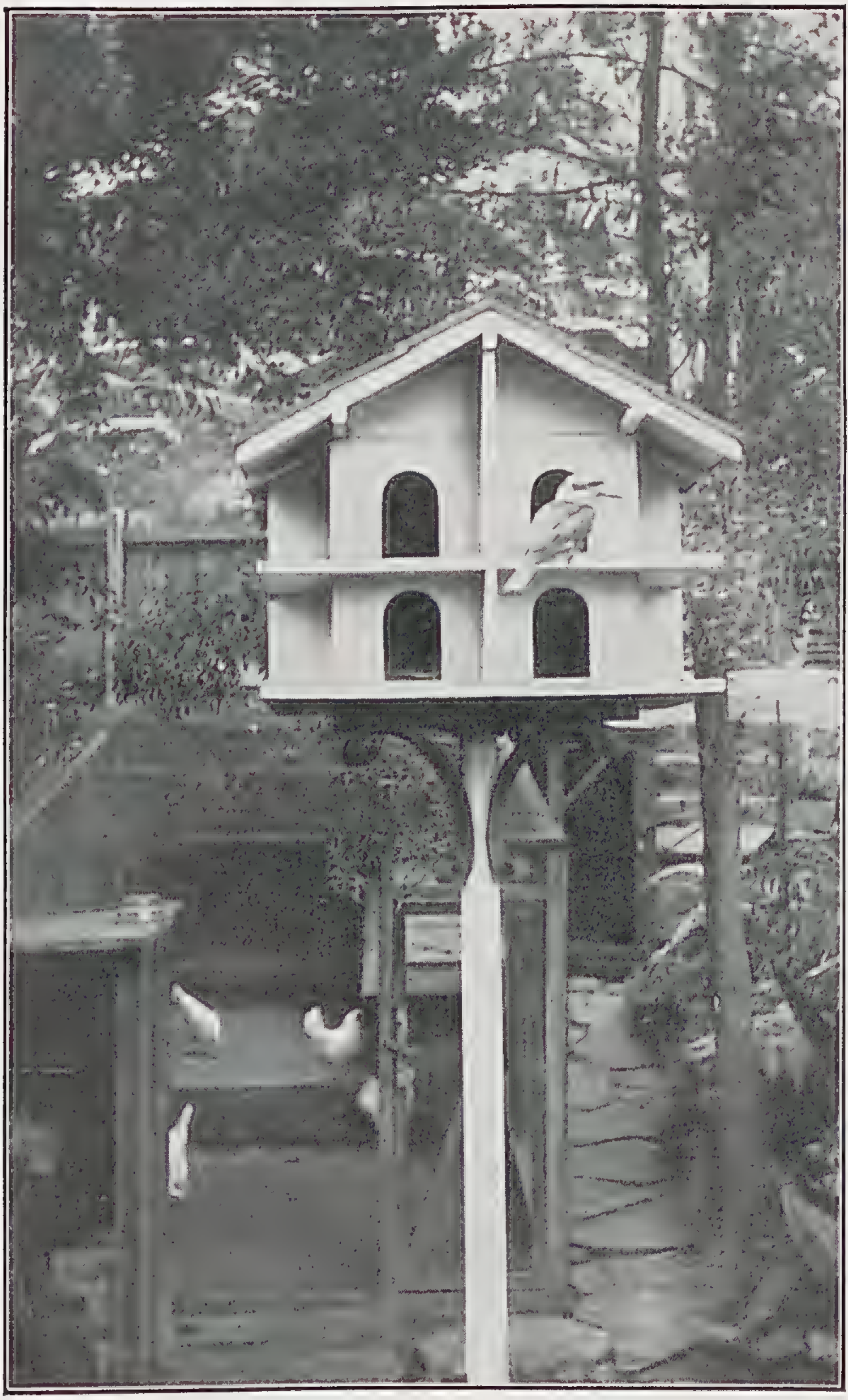
* * *

Bearing on the foregoing subject, Mr. D. W. Gaukrodger, R.A.O.U., writes as follows in the Brisbane *Daily Mail* of 16th January, 1926 :—

" Much interest has of late been taken by Queensland ornithologists in a recent discovery by Mr. Jerrard, of Gayndah, of the appearance of the Black-breasted Quail, which it was feared had become totally extinct. The last previous official record seems to have been made by Messrs. Barnard Bros., to the effect that these birds disappeared, and have not since been seen at Coomooboolaroo station (central district of Queensland) for 25 years. Whilst 'talking birds' to Mr. Hall (manager of Barambah station), he said definitely that this particular species of Quail still existed more numerously than Mr. Jerrard's 'bevy of three or four' indicated, and related that there is strong evidence that they are still breeding at the sources of the Brisbane, Burnett and Mary Rivers, about 75 miles south-east from where Mr. Jerrard observed them. Mr. Hall says they are essentially a scrub Quail, and he knows of one particular breeding-ground on Manumbar station. Messrs. Jerrard and Hall are both bird-men, qualified and reliable in their observations, and there is little danger of their making any mistakes in these instances, and so one begins to wonder whether there are not more of our so-called extinct birds still in existence if the many remote districts of the State were examined by similar careful observers."

Supporting Mr. Gaukrodger's note, Mr. J. O'Neil Brenan, R.A.O.U., writes :—The only time I saw the Black-breasted Quail was in a scrub on the side of a ridge at Moggill, near Brisbane. It was a very long time ago. I was looking for Top-knot Pigeons when I came across three of them. My gun was loaded with large shot, which would have smashed them to pieces, and so I did not fire. The three birds kept quite close together as they ran, and of course disappeared quickly in the dense scrub. About 27 years ago the late Messrs A. MacDowall and Henry Donkin told me that there was a Quail with a light-coloured eye in Beard's bird shop, Brisbane, that they did not know. I went to Beard's and found it was a Black-breasted Quail. Where it came from I do not know, and I have not seen one since. Previous to that, a bird-catcher, named Francis, more than once brought one or two in. They were well known to all the scrub shooters of that time, but always considered rare birds. A friend of mine had one mounted sitting on her clutch of eggs. She was shot in one of the scrubs about Moggill.

Strange Nesting-site.—Kookaburras (*Dacelo gigas*) have made themselves quite at home in our suburban gardens, and many are fed regularly by householders. A pair in the vicinity of Mosman come every afternoon about five oclock, and make a good meal of about half a pound of beef. Sometimes a pair of Butcher-birds put in an appearance as well, and these are very clever at catching bits of meat thrown in the air. Last spring a pair of Kookaburras took possession of one section of a pigeon loft in Mr. A. Waddell's garden at Edgecliffe. Two eggs were laid and one fine youngster hatched and reared. The birds were remarkably tame and showed no resentment if the baby was handled.—A. S. LE SOUEF, Taronga Park, Sydney.



WILD KOOKABURRA NESTING IN SUBURBAN PIGEON-LOFT.

Photo. by A. Waddell.

NATIONAL MUSEUM MELBOURNE

Birds and Prickly Pear

By J. Neil McGilp, R.A.O.U., King's Park, S.A.

On 6th January, 1926, the *Pastoral Review* printed the following :—

> " The Queensland Prickly Pear Land Commission has added another activity to the matters it is at present administering. It had been in communication with western local authorities for some months, seeking their co-operation in framing a practical scheme to minimise the spread of pear by Emus, Crows, and Scrub Magpies. All the western local authorities have given a general endorsement to the commissioners' proposals and are desirous of co-operating therein. The shires concerned are :—Balonne, Bunana, Bauhinia, Booringa, Bungil, Chinchilla, Duaringa, Emerald, Murilla, Murwich, Peak Downs, Tara, Taroom, Warroo and Waggamba. A definite scheme is therefore being launched by the commission as from the 1st February next. To encourage the destruction of these birds, bonuses as set out hereunder will be paid to anyone destroying them within the shires mentioned. The bonuses are :—Emus, 2/6 per head ; Crows 6d. per head ; Scrub Magpies, 4d. per head ; Emus' eggs, 1/- each."

I have always advocated the preservation of the Crow, for I have considered it a very valuable bird as an agent to combat the fly pest with sheep. I have always been against the wholesale protection of any bird, as I have long ago realized that a bird may be of great economic value in one portion of our Commonwealth and a pest in others.

Having no experience of prickly pear country does not prevent me from accepting the contention that the Emu and the Crow will help to spread the pear. I have carefully studied the habits of the Emu and the Crows, and must admit that the probabilities are very great. Further than this, the fact that pastoralists are willing to make payment for the destruction of the birds carries a deal of weight, for from what I know of this class of producer they will not pay out money if they cannot foresee a return for their expense.

It is hardly possible to estimate the loss to our country caused by the prickly pear, and if it is proved, as I am afraid it is, that the Emu, the Crow and the Scrub Magpie (*Strepera*) are agents for spreading the pear pest, they must go. I will not agree that the Crow should be wiped out all over Australia just because it is a pest in pear country, nor will I be so narrow-minded to advocate its protection over the whole of Australia merely because I know it is a very valuable bird in South Australia. I do not see why we cannot preserve the Crow in localities where it is useful ; the Crow will soon realise that it is dangerous to visit certain country where war is being waged against it.

Some months ago Mr. H. L. White, of New South Wales, in writing to me, said he was surprised to find that I advocated the protection of the Crow, and gave figures showing that it costs him hundreds of pounds per year to clean up the young seedlings of pear that are the result of the Crows' droppings on his estate (Belltrees, N.S.W.) His letter opened my eyes to the fact that in his part the Crow is a pest, and I was not surprised to read the paragraph in the *Pastoral Review*. I know from experience that grasses and vegetation that are valuable in some country become pests and possible dangers to stock in other localities. So it is with birds and animals.

[The matter of the relation of Emus to prickly pear (*Opuntia*), has frequently been considered in Queensland and New South Wales. One of the most interesting contributions to the discussion is that of Mr. R. Macpherson, of St. George, Queensland, as printed in a Sydney newspaper. " I have been 38 years in this district," he says, " and during that period have carefully marked the position of Emu droppings showing traces of prickly pear. These spots I have inspected periodically for years, but have never yet discovered signs of a young plant springing up. Men have argued with me that they have seen a cluster of pear seedlings growing out of the droppings." I cannot agree with them, because pear seed takes a good while to germinate, and by the time a plant was showing through the ground there would be no signs of any droppings left, as they soon disappear. My idea is that those who argue this have seen a round patch of seedlings caused by a bird flying overhead and carrying ripe fruit which it dropped from a height. It would naturally fall ' squash ' on the ground and look exactly as if it had sprung from an Emu dropping. Another conclusive argument, Mr. Macpherson thinks, is that Emus have been running up and down rabbit fences in his district for thirty years without leaving traces of pear.

Mr. Macpherson's case is important, but is it not possible that pear seeds may lie for several years before germinating, by which time all traces of their medium (dung, etc.,) would have disappeared ? Anyway, what sense is there in destroying Emus when cattle, which certainly spread pear, are running in the same country? It behoves bird-lovers, and indeed all good Australians, to see that these remarkable birds are not unduly victimised.—Editor.]

The Tasmanian Emu.

By H. Stuart Dove, North Devonport, Tasmania.

The notes on the pair of Emus at Circular Head by Mr. D. Dickison in the January number of our journal (Vol. XXV., p. 213) were read with interest. Wm. Westgarth, quoted by Mr. Dickison, says that the pair had been imported from the mainland. Just recently I have been searching through a number of the early journals, and in *The Emu*, Vol. III., p. 229 have found an interesting article on our bird by Mr. Dudley Le Souef, in which is a statement which bears directly on the Circular Head pair. It is as follows.—

"Mr. John Meredith, of Cambria, East Coast, says :—' I remember perfectly Emus being caught in this district prior to 1830, and for a few years subsequently also between this place and Avoca. I saw a pair at Circular Head on Black Thursday, 1851. They were full-grown, and had with them half-a-dozen young ones. The old birds had been caught when young near Circular Head, and reared and tamed. Mr. Ransom, of Killymoon, in the Fingal district, remembers hunting Emus with kangaroo dogs about 1840, when he was a man of 18. He remembers Capt. Hepburn, of Roy's Hill, finding an Emu's nest with 8 or 9 eggs. A little later these were hatched under a turkey hen. From these were bred others, and a pair of them were given to the late Baron von Stieglitz, of Killymoon, one of which survived until 1873, when it was drowned in trying to cross a flooded river. With its death, the Tasmanian Emu, Mr. Ransom believes, became extinct. An old resident of Avoca, who knew Capt. Hepburn, used to say that the Tasmanian Emu was much taller than the Australian, but the general opinion of old colonists is that the two were identical. In the 'thirties they were habitually hunted and killed for food on the east coast and elsewhere. Gould, writing about 1846, says that the Emus were then almost extirpated from Tasmania. He clearly regarded them as of the same species as those of Australia. Mr. T. Stephens, Hobart, says that in the early 'fifties Mr. Jas. Cox, of Clarendon, imported one or more from Victoria along with two Native Companions, and others were introduced somewhat earlier.' "

In the same paper Mr. Le Souef says that two eggs are known to be in existence, one measuring 4.85 x 3.40 inches, the other 4.80 x 3.50 while a typical egg of the mainland species is 5.56 x 3.63. In a previous number (*Emu*, Vol. III., p. 114) the same writer had given another note on these eggs ; the one measuring 4.85 x 3.40 was in his own collection, and was collected about forty years ago, *i.e.*, about 1863, in the eastern district of the island. "If it is a fair type of their size, these birds must have been slightly smaller than the Australian race, and it would be interesting to know the dimensions of any other authentic eggs in existence (excepting the one in Mr. J. W. Mellor's collection). The granulations on a lighter ground appear finer than those from the mainland, and the egg is very dark green in colour."

The egg alluded to in Mr. Mellor's collection is evidently the 4.80 x 3.50 mentioned in Le Souef's previous notes. In *The Emu* Vol. XIII., p. 65, Mr. A. J. Campbell has an article on Mr. White's collection at Belltrees, Scone, on p. 73 of which appears this item : " With tenderest care we are permitted to handle an authenticated egg of the defunct Tasmanian Emu (*D. diemenensis*) probably the rarest item of the whole collection." Mr. Campbell does not give any history of this specimen, nor are the dimensions stated, but possibly it is identical with one of these mentioned by Mr. Le Souef.

In *The Emu*, Vol. VI., p. 116, is an important article on the extinct Emus of Tasmania and King Island by Col. W. V. Legge, in the course of which he states that in his young days he actually saw living individuals of *D. diemenensis*. For the benefit of those members who may not possess the earlier volumes of our journal, the passage will be quoted. After stating that the Tasmanian species has been considered distinct from the continental *D. novae-hollandiae* on account of the size of the egg, Colonel Legge writes :—

> "As regards the former, it may be interesting to members of the A.O.U. to hear that during the 'forties the Tasmanian Emu used to inhabit, and bred regularly in, a locality known as Kearney's Bogs. This upland moor was part of the Rockfort estate, owned then by the writer's father-in-law, Major W. Gray. It is situated about 12 miles to the south of Avoca, in a portion of the Eastcoast Ranges, which flank the valley of the St. Paul's River. One of the shepherds of the estate, H. Wyburn, was resident at the bogs, and used not infrequently to bring eggs to the house, and about the year 1845 succeeded in capturing two young birds, which were conveyed to Rockfort and reared in the goose-yard. They lived about the homestead for several years, and were tame and mischievous, coming to the open French windows of the dining-room to be fed, thrusting their heads into the room at times. Mrs. Legge, who was then a young girl, has vivid recollections of these Emus, and avers that they were large birds, very similar to those of the continent. Some years afterwards a pair of Tasmanian Emus, which I am of opinion were also brought from Kearney's Bogs, were kept at the Tullochgorum estate, not far from Avoca, and the appearance of these birds, as they ran along the fence of their enclosure, is firmly impressed on my recollection as a boy. They were slightly smaller than the average example of *D. novæ-hollandiæ*, but must, from the accounts given of *D. ater*, of Kangaroo Island, have been larger than that bird and much in excess of the species whose osseous remains have been lately found in King Island."

Breeding of the Gang-Gang Cockatoo.

BY F. GEO. HEDGES, R.A.O.U., Beaconsfield, England.

IN 1920 a pair of Gang-gang Cockatoos ((*Callocephalon fimbriatus*) were obtained from Mme. Lécallier's aviaries, of which I was then in charge. The cock was a bird newly imported from Australia, the hen an acclimatized bird from the Marquess of Tavistock's aviaries.

On arrival they were placed in separate cages while an aviary was being built for them. This was 16 feet long and 14 feet wide, with the centre 12 feet high. The reason for this extra height in the centre was to allow them to get high up out of reach, and to enable a nesting-barrel to be fixed high up, as I believe it is their natural habit in the wild state to nest in very high trees. This arrangement evidently pleased them, as they were nearly always in the higher part, in which was a dead pear tree on which they perched. This part of the cages was covered about 3 feet square with board and zinc, to give protection from the sun and to form a dry shelter for them.

Under this shelter was placed a five-gallon wine-cask, the end of which was covered with one-inch board and zinc, with and entrance hole 3½ inches in diameter. The zinc covering was to prevent them from cutting a larger hole. They also had a covered shelter 14 feet long and 3 ft. 6in. wide, with a perch and a dead pear-tree. This was covered in front with boards about 3 feet down from the roof.

The birds were placed in this aviary in May, 1920, but did nothing that season in the way of nesting. Early in May, 1921, I saw them mating, and as they were now using the nesting barrel, I began to have every hope that they would breed. On June 1st I looked to see if there were any eggs, but found none. On June 3rd the barrel was still empty, but on the 4th I saw the first egg. On the 6th I saw a second egg, and this completed the clutch. The birds seemed not to be disturbed in any way by my looking into the nest. During incubation, whenever the hen came off to feed the cock took her place. She always came off in the afternoon for an hour and a half or two hours.

The first egg hatched on July 4th. The young bird died next day and I removed it and have it preserved in alcohol. When I was removing the dead chick I saw that the second egg was about to hatch, and this took place on July 6th. The newly hatched young were covered with rusty red down. Eight days later I again looked into the nest and could see that the young one had grown and was being well attended to. The birds were left quiet and I did not look into the barrel again until the young one was a month old, as I could hear it in the nest. At this age the young bird was covered with feather-stubs of a grey-blue colour, those on the wings, tail and chest being longer than those on the body. When it was six weeks old red colour began to appear in the crest, showing that it was a cock bird.

After this the young bird gained feathers very quickly, and during the eleventh week I saw him looking out of the nest. On the morning of Sept. 4th I found him sitting on the dead pear tree, and was pleased to see that he was a fine strong bird, not specially wild. He resembled the hen bird in form and colour, except that he had a red crest, not so bright as that of an old cock, and only a few red feathers on the cheeks, with a dark streak on each side of the beak. He could fly well and could often be seen with his parents at the feeding tray. If a stranger entered the aviary the hen would cry loudly, and the cock would fly to the young one as if to guard it from danger. During October I caught the young bird and placed it in the larger bird room, where it did well. The complete scarlet helmet was obtained when a year old.

As cage-birds, the Gang-gangs appeared to be hardy, and in no way affected by the cold, provided they had a good dry shelter to go into. Mr. A. S. Le Souef afterwards brought over two more pairs from Australia, so that Mme. Lécallier had three pairs in addition to the young bird reared. They are very interesting birds when in a large aviary. Their amusement seems to be cutting up all the woodwork and perches that they can get at. They were fed on sunflower, wheat, oats, hemp and canary seed, white boiled maize, bread and milk, and a little pear or apple.

Most of the foregoing information was published in the *Avicultural Magazine*, Jan. 1922, but I think it may prove of special interest to ornithologists in Australia.

Birds of Murrayville.

BY REV. W. WALTERS, TH. SCHOL., R.A.O.U., Cowangie, Vic.

NOW that the party under the leadership of Mr. J. A. Ross has rendered service to the Murrayville district and to the R.A.O.U. by compiling the main body of a permanent bird list of a typical Mallee district, it would be well to extend it from time to time and to keep it up to date. With that end in view the following notes are supplied. Some of the birds mentioned are well distributed through the district although they cannot be looked upon as common. Others are rare specimens or occasional visitors.

Emu (*Dromaius novae-hollandiae*). In *The Emu*, Vol. XXV. p. 177, Mr. Ross mentiond the new tracks of a pair of these birds. At times they visit even the settled parts of the district in great numbers. On one occasion, about September or October of 1924, Mr. Burzacott, a farmer at Walpa, north of Murrayville, noted upwards of 50 birds feeding in his paddocks. Their arrival in large numbers at this time was probably due to the settlement of the Millewa Country. Occasionally they are seen near the Ouyen-Pinnaroo railway, and even within a few chains of a township.

Buff-banded Land Rail (*Hypotaenidia philippensis*). On September 15th, 1925, a dog caught a bird in Mr. A. W. Hendy's farmyard at Cowangie. The writer is almost certain that another crossed the Murrayville road near the Danyo school next morning. Inquiries in many directions have failed to gather instances of any other appearance of the bird in the district.

Spur-winged Plover (*Lobibyx novae-hollandiae*). On Sunday morning, February 28th, 1926, the note of a Plover was heard at Hazeldean, Cowangie. Examination at the distance of a few feet showed its yellow wattles and the other characteristics of this species. The Banded Plover is common on the Cow Plains, but the Spur-wing is only an occasional visitor.

White-necked Heron (*Notophyx pacifica*): On November 3rd, 1925, the writer and his wife were returning from Mountain Pine, a desert soak on the old Nhill track, when in a small waterhole at Mr. F. J. Schultz's gate, near Mumble Tank, they saw one of these birds. On being approached, with the object of attempting a photograph, the bird flew high up, and was then found to be circling about with another bird of the same size and evidently of the same species.

Black Swan (*Chenopis atrata*). This bird is looked upon as stationary, common in lake districts, but practically unknown elsewhere. Yet a very tired bird alighted in the farmyard of Mr. A. A. Peers about 1923, and was well known to visitors to the Murrayville Hotel until Mr. R. Nicholas left at the end of 1924. Murrayville is the centre of a semi-circular bend of the river Murray, but the radius of the curve is roughly 80 miles.

Owlet Nightjar (*Aegotheles cristata*). When the R.A.O.U. party was at Cowangie a party of road labourers cut out several Parrots' nests near the township. In one case a dry spout of a dead branch was removed. Soon afterwards an Owlet Nightjar had a vacant home simply furnished. The newly chopped wood might have saved the bird from detection had it not been for the habit characteristic of the species of coming to look out when any sound is heard without. One egg was noted on October 30th, 1925, a second on the 31st, and a third on November 2nd. The young birds were hatched on November 23rd. They were missed from the nest a few days later, but there has been the proper addition to the Owlet Nightjar population in the favourite hiding-places of the parent bird.

White-backed Swallow (*Cheramoeca leucosternum*). These beautiful inland birds tunnel in the sides of the gypsum or copi quarries between Cowangie and Tutye. Occasional specimens may be noted flying in other parts of the district, as near the railway dam and the Cowangie Cemetery.

Red-winged Wren (*Malurus elegans*). It was a long time before I could believe my identification of this beautiful bird. I first noted the touch of rich chestnut when motoring from Murrayville and crossing the railway catchment between Danyo and Cowangie. The sight of the female bird helped considerably. They are fairly numerous in the turpentine bush near the railway parks, where other members of the Wren and Thornbill families are common. About Christmas of 1925 several walks were made to the locality to make sure of the bird.

Magpie Lark (*Grallina cyanoleuca*). It is surprising that this bird was missed by the R.A.O.U. party. It is by no means common, but is fairly well distributed through the district. " Stationary " is a very true description. One meets a pair time after time at the same corner or crossing a road in the very same place.

Orange-winged Sittella (*Neositta chrysoptera*). When my brother, T. L. Walters, of the Moore's Flat School, stayed with me in January last, we made several " bird walks " between Cowangie and Danyo. This was the only bird we were able to add to the list. Two birds were seen where the porcupine grass and big Mallee meet, just west of Cowangie.

Stray Feathers.

Birds Singing on their Nests.—In his "Recollections of an Oologist," in the last number of *The Emu*, Mr. J. A. Ross mentions (p. 142) the Whistler as a bird that he has not heard singing on its nest. In this locality near Sydney it is a Whistler (*Pachycephala rufiventris*) that seems to have this habit of what might be called sedentary singing more than any other bird, and has thereby on a few occasions enabled the nest to be located. During last November a schoolboy naturalist and myself had been trying for many days to find the nest of one of these birds without success. We knew the nest was there somewhere, in a small area near my home, where the male bird was continually singing, and we were beginning to feel that we were beaten. One morning, however, hearing a fine burst of song, I found it proceeded from the top of a tall eucalypt where the male bird was sitting on the nest. The nest was so high and so concealed in tree-top leafage that but for the bird's tuneful assistance it would probably not have been found. Incidentally, this nest was fully 80 feet from the ground, the highest nest of this species I have seen ; the lowest being one, from which I flushed the bird, only 3 feet above the ground in a blackthorn bush (*Bursaria spinosa*). Many times, too, have I observed this bird (only the male) burst into fine song on its nest immediately following a roll of thunder, after the well known habit of the species. Both birds sit on the eggs in turn, but I have not heard the female sing on the nest. She, indeed, according to my experience, sings but rarely and a little light and pretty song only ; nothing to be compared in power or variety to the fine notes of the male bird.

The Leaden Flycatcher, (*Myiagra rubecula*) also sings on the nest. I have observed that each bird will sing some very sweet notes when greeting the mate who approaches to relieve it from incubating duties, and I have heard the bird sing while sitting on and giving finishing touches, to an almost completed nest. As to the nesting site of this species, my experience tallies with that of Mr. Ross about the horizontal limb and a branch over it. The limb carrying the nest is always a small one, I think, and dead, but I have seen not more than half a dozen nests.—H. WOLSTENHOLME, Wahroonga, Sydney.

* * *

Cuckoos' Eggs in Sparrows' Nests.—Reference is made in the January issue of *The Emu* to an egg of the Narrow-billed Bronze Cuckoo (*Chalcites basalis*) having been found in the nest of a House Sparrow (*Passer domesticus*). Forty years ago the Hon. G. M. Thomson, then rector of the Boys' High School, Dunedin, procured an egg of the Shining Bronze Cuckoo (*Lamprococcyx lucidus*) from a pupil who found it in a House Sparrow's nest located in a Monterey pine-tree (*Pinus radiata*). This species of Cuckoo is an annual migrant from Australia to New Zealand. It arrives generally about the middle of September and departs about the middle of April. Its eggs have been found in the nests of five species of native birds, in addition to that of the House Sparrow. The chief foster-parent is the Grey Warbler (*Gerygone igata*).—W. W. SMITH, New Plymouth, N.Z.

[It would be very interesting to Australians if Mr. Smith were to substantiate his statement that the Shining Bronze Cuckoo migrates annually from Australia to New Zealand. A specimen ascribed to this species was taken on the Capricorn Islands in Central Queensland, in 1910, and in the *Emu* report of the find (Vol. X. p. 197) it is stated : " The winter home of the New Zealand species is supposed to be North Queensland and New Guinea ; if that be so the Capricorns would be within the fly-line." There is also in the Australian Museum (Sydney) a Cuckoo skin which almost certainly belongs to this species ; it was taken near Sydney many years ago. But two records such as these are scarcely sufficient to establish as a fact that the Shining Bronze Cuckoos migrate from Australia to New Zealand each year.—EDITOR.]

* * *

Australian White Ibis in New Zealand.—An immature White Ibis (*Threskiornis molucca*) was captured alive by Mr. M. Rogers, of Appleby, in March, 1925, and sent to the Wellington Zoo. It was at first thought that the bird had escaped from captivity, but later it was realised that it must have been blown over from Australia by a strong north-westerly gale on March 5th, seeing that it was observed a week previous to capture on the Appleby Mudflats. It fed there by day and at night retired to roost on a perch in a tree 30 ft. from the ground, where it was secured one night by Mr. Rogers. The Ibis appeared very healthy, eating about 26 minnows per meal. It only once made a sound and that was when caught for inspection, when it emitted a dull croak, much like the cry of a Paradise Duck. The first occurrence of this bird in N.Z. was recorded by the writer in the New Zealand *Journal of Science and Technology*, vol. vii, No. 6, pp. 371-72 (1925). Since then it would appear that a flock of Ibises was driven across by the gale; one was seen at Greymouth, another at Riwaka (both West Coast) and a third from the South Taranaki coast. In addition, Mr. Rogers writes that another bird has recently been observed near Appleby, and regrets the fact that the first bird was put in captivity, seeing that a pair might have established themselves. It is to be hoped that if more are driven across the Tasman Sea their value will be realised and the birds given a chance to become permanent residents of New Zealand.—PERRINE MONCRIEFF, The Cliffs, Nelson.

* * *

Pied Bell-magpie and Snake.—On Dec. 13, 1925, while watching a pair of Whip-birds (*Psophodes olivaceus*) in a secluded and creeper-festooned gully, at upper Middle Harbour, Sydney, I was witness, with a companion, to an interesting scene. We had been in the gully about fifteen minutes, during which time a young Pied Bell-magpie was continually heard calling for food; it was eventually located in a fairly high blue gum. Suddenly its clamouring grew louder, and my companion on looking up was amazed to see the parent bird, a few feet from the young one with a "whip" snake in its bill. Gripping the branch and the snake with one foot, the bird began to tug at the snake as if to separate it. Apparently the proposition was too tough, and, after about a minute of unavailing effort, it flew to a nearby tree, but almost immediately returned and, to our astonishment, proceeded to thrust the snake, head first, into the young bird's mouth. It then hopped on to another branch and watched with apparent satisfaction the snake quickly disappearing. As far as could be judged the snake was about a foot in length and a little thicker than an ordinary lead pencil. It appeared to be dead. A peculiar thing noticed about the parent bird was that its upper mandible was almost an inch shorter that the lower.

Confined to Australia, Tasmania and Lord Howe Island, the Bell-magpies, of which there are five species,* are generally considered insectivorous. In fruit-growing areas, however, a flock of perhaps six or seven birds will visit an orchard and devour or spoil a considerable quantity of fruit. The haunting, bell-like call of the Currawong is indescribable; to hear them calling to one another from opposite hills is a delightful experience.—K. A. HINDWOOD, R.A.O.U., Willoughby, N.S.W.

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Whiskered Terns on the Swan River.—On Dec. 12th, 1925, Mr. D. L. Serventy, R.A.O.U., and I paid a visit to Burswood Island, a fairly large area on the eastern side of Perth. When crossing the railway bridge we became aware of a small flock of Terns, hawking over a large weed-bed adjacent the island. They were in company with a number of Welcome Swallows similarly engaged. At a distance we thought they might be Fairy Terns (*Sterna nereis*), though their flight raised doubts. A nearer inspection revealed them to be a species of marsh Tern. They were not dark enough for *C. leucoptera*, and had rather short bills. Five or six had brown underparts and had the general appearance of adult birds; the remainder were in various phases of plumages suggestive of immaturity.

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*The New Check List accepts six species.—EDITOR.

After a close and prolonged observation we came to the conclusion they were Whiskered Terns. The flock consisted of about twenty individuals. They appeared to be picking aquatic insects from the surface of the water as they flew to and fro.

There are several specimens in the Perth Museum procured at Herdsman's Lake on the western side of the city. Mr. W. B. Alexander also includes the Whiskered Tern as an occasional visitor to the neighbourhood of Perth in his paper. (*Emu* vol. XX pt. 3). But as Mr. G. M. Mathews refers to this Tern as a north-western species, the above occurrence may be worth recording.—F. LAWSON WHITLOCK, R.A.O.U., Perth W.A.

* * *

The New Zealand Quail-hawk—A series of recent exploits by a young female of this well-known marauding species (*Nesierax novae-hollandiae*) may be worth recording. Three days ago Mr. H. G. Moverley, of New Plymouth, presented me with a fine specimen alive which he caught devouring a Pigeon in his pigeonry. Mr. Moverley's residence is in the central area of New Plymouth. He possesses a large series of several varieties of valuable Pigeons. Two days previous to capturing the Hawk some Pigeons were feeding on the back lawn when it swooped down and killed one, and coolly commenced to devour it. Some children playing on the lawn informed Mrs. Moverley, who drove it away. Next day it again swooped down and killed another Pigeon, and again was driven off the lawn. On the third day Mr. Moverley, hearing a commotion in the pigeonry, went to it and caught the Hawk devouring a valuable Pigeon. The Hawk had followed the Pigeons through the upright wire swing trap, which only opens inward, thus preventing its escape. It had visited Mr. J. James's loft previous to its attack on Mr. Moverley's birds, but it failed to gain an entrance to it, or secure any prey. The bird is in perfect condition and plumage and is apparently about five months old. I am having it sent to the Zoological Society, Wellington.—W. W. SMITH, New Plymouth, New Zealand.

* * *

Second Broods of Birds.—In *The Emu*, Vol. XXV. Part. I, I wrote a few observations on the above subject. I mentioned that I was satisfied that a few of our birds reared a second family in a season and asked that members should give observations of a second brood.

As I have not seen any records in the journal, I am writing this to show that some members have seen second broods. I am indebted to

Miss Galbraith, of Victoria, Mr. J. D. Serventy, of Western Australia, Mr. H.A. Mawhiney, of New South Wales, and Messrs. J. Sutton and F. E. Parsons, of South Australia, for letters quoting instances of a second family in a season.

It is very strange, at first glance, to have to write that with the exception of Mr. Parsons, my correspondents all refer to the same birds, *i.e.*, the Black-and-white Fantail, the "Murray Magpie," (*Grallina*), and the Yellow-tailed Thornbill; and stranger still that in each case the birds had reared the second family in the first nest. Mr. Parsons, however, writes of a Black-faced Cuckoo-shrike that had two broods but built a new nest for the second family.

Upon consideration, the fact that the Fantail, the "Murray Magpie," and the Yellow-tailed Thornbill are probably the commonest of our birds, consequently the easiest for observation from their habits of nesting close to human homes, I think we must take the observations as circumstantial evidence that many other birds not so easily observed also bring forth a second family.

During a recent trip to our West Coast country, in company with Dr. Morgan and Messrs J. Sutton and F. E. Parsons, the writer found a nest of the Purple-backed Wren (*Malurus assimilis*). It contained three fresh eggs. Upon closer examination it was found that the nest had previously been used. Although heavy rains fell prior to and during our visit, the scales from the pin feathers of the young birds were undamaged in any way, proving, I think, that the young birds had only recently left the nest. The parent-birds had re-lined and repaired the entrance to the nest for the second brood.

This subject is to me, and I suppose many other members, of great interest, and I should like to see all members who come across second broods record the fact in our journal, mentioning at the same time if the nest was previously used. Many of our birds may rear second broods only occasionally or where the season is of long duration; other birds may always rear two families. Only by careful observation can these facts be brought to light.—J. N. McGilp, King's Park, S.A.

* * *

Peach-faced Love-birds (*Agapornis roseicollis*).—This pretty and engaging little Parrot had been imported from Africa by aviculturists, and quite a number have been bred in aviaries in the vicinity of Sydney. Recently, hearing a strange note in a eucalypt in Taronga Zoological Park, I looked up and noted about half a dozen of this species in a tree. These had evidently escaped from some private aviary, and it will be interesting to see if they succeed in establishing themselves in the country. Their food is said to consist of berries, and it is likely they will find ample sustanence in the fruit of the wild figs.—A. S. Le Souef, Taronga Park, Sydney.

* * *

A Fatal Bittern.—A note concerning a motor-car accident caused by a Hawk, recently published in *The Emu*, recalls the disastrous effects of a flying Bittern (*Botaurus poiciloptilus*) breaking a 3,000 volt electric transmission line near Te Awamutu, New Zealand. The wire fell on a wire fence, which was thus charged with the current. A settler, driving a small herd of cows across the road after milking, did not notice that the wire was down. One cow touched the fence and fell down, electrocuted. The settler went to turn the other cows from straying, and in seeking to get through the fence he received the full force of the current and was killed instantly. His wife, thinking that a bull had gored him, ran for the assistance of neighbours, one of whom also attempted to get through the fence. He sustained a shock that hurled him sideways and burned him across the back. A horse and dog also came in contact with the fence and were killed. The accident occurred on 22nd. February, 1925.—ROBERT H. D. STIDOLPH, Masterton, N.Z.

* * *

Form and Coloration of House Sparrows' Eggs.—There can be very few species of birds whose eggs exhibit a greater range of coloration, form, and size than do those of the House Sparrow (*Passer domesticus*). When living in Mid Canterbury, South Island, a few years ago, my boys made large collections annually from which I selected a long series showing a remarkable range of variation and divergence from their general coloration and size. Some clutches were pure white passing through many shades of ground colour to pure black with large and small blotches of numerous shades and tints. One clutch of four had the whole ground colour a bright reddish pink, without any sign of other markings. Several of the clutches of eggs were a third smaller and some a good third larger than were the sizes of the average clutches. Nests containing the smaller eggs were about 6 *per centum*, while the nests having the larger eggs were about 14 *per centum*. I sent a series of the three forms to the late Professor Alfred Newton, the distinguished ornithologist at Cambridge, England. In acknowledging them, Prof. Newton stated that they showed " striking phases of variation from the typically mottled eggs of the House Sparrow." Has any Australian oologist published any notes on this subject ?—W. W. SMITH, New Plymouth, N.Z.

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A Ramble in New Zealand.—In the course of a letter dated 21st January, Mr. W. B. Alexander, M.A., who is on his way to England, makes the following notes in connection with a New Zealand ramble : Yesterday I had a day in the bush near Wellington with Mr. W. R. B. Oliver. It is mainly beech forest, several species of *Notofagus* with small leaves, with some other trees, pines of several species, occasional palms and tree ferns. The undergrowth consists largely of ferns, seedling beech trees, and various shrubs. Almost immediately we entered it I heard a *Gerygone*, but though they were heard almost all the time I failed to see one. The song seems to me to be nearest to that of *G. cantator*, but is not so loud nor jerky as is usual in that species ; there is more of the sweetness of *G. olivacea* or *G. culicivora*, but it is louder and more varied than the latter. At times I distinctly heard some squeaky notes like those of *G. cantator*, uttered in the same way as a prelude to the song. Another bird which interested me a good deal was the Tomtit (*Myiomoira toitoi*) which came up several times when I chirped. It is like a dark specimen of a female *Petroica*, with no red colour, but it has the little whitish mark on the wing so characteristic of our Robins, and it droops its wings at intervals in the same fashion. We also saw Whiteheads—a bird *sui generis*—of course nothing like *Orthonyx*, with which it was once placed. Silvereyes were very common. Fantails (*Rhipidura flabellifera*) with tail feathers almost all white, were frequent. I glimpsed a Tui as it flew past, after we had heard its fine song, and we had excellent views of a N.Z. Pigeon, which sat on a low tree till we were within a few feet of it.

From Magazines, Etc.

Australia in Scotland.—The Royal Scottish Museum has been the recipient of a splendid collection of about 350 Australian birds from Lady McEacharn, of Galloway House, Garlieston, and Captain N. McEacharn (says the Edinburgh *Scotsman*). The collection, gathered by the late Sir Malcolm McEacharn during his residence in Australia, is representative of the bird life of the Dominion, and, so far as the eggs are concerned, is probably unequalled in this country. Australia is without the singing birds which are a feature of our own country, but what the feathered population lacks in music it atones for by beauty of form and brilliance of colour. The rich representation of Birds of Paradise, Bower-birds, Parrots and Parrakeets is the special feature of the collection, but in addition to the birds and their eggs the student of natural history will find interest in a variety of zoological specimens, including examples of marsupials in embryonic and later stages, as well as fishes and marine organisms collected in the East Indian Archipelago.

* * *

The Whip-bird's Music.—"The other day a Whip-bird whistled for about an hour in the scrub bordering my garden," writes a correspondent of Sydney *Daily Telegraph*. "It was at daybreak. It displayed a repertory of three calls. One of three short notes on C sharp (third space of the treble clef), the last sustained and crescendo, finishing with an upward whip-crack, like a sharp, swift glissando, starting an octave lower, and going up about two octaves, the tone quality being quite different to the first three notes, and not possible on a musical instrument on account of its unmistakable stock-whip quality. Another call was a transportation of the first (a third down), finishing with a descending crack—the inversion of the upward glissando. Still another call, not so often used, started on a long-drawn out F sharp (top line of the treble stave), gliding with a crescendo into G, a semitone above, and finishing with a whip-crack. He displayed a few little chortling notes, but these were infrequent. I tried to imitate the first and second calls, but my whip-crack was very unconvincing. After a couple of feeble efforts (I can't whistle first thing in the morning) the bird from the unseen shelter kindly assisted me, whistling the same call after me, and repeating the whip-crack part, as much as to say 'This is where you go wrong.' Then I only whistled the first three notes, and he came in on time with the whip-crack. I tried the second calls, with some results, and then tried alternately the higher and the lower notes of the first two calls,the bird finishing with the corresponding whip-crack in each case. He then appeared to suggest that I should try the third call, but my morning whistle not being up to this high pitch, he went back to the other calls. This conversation of ours lasted for twenty minutes."

To the foregoing, Mr. G. de Cairos Rego, musical critic of the *Daily Telegraph*, adds :—Here is a chance for an Australian composer to write a bird symphony on these bird calls, so minutely described. Musicians are, of course, familiar with the imitations of bird music by great composers, and some of the most famous had pet birds. Mozart kept a Starling, Beethoven an Indian Raven, Wagner a Parrot. The last-named, asked whether he did not find his bird too noisy, replied, " I am used to it. I take it everywhere. It is noisy, but I am compensated by having a wife who does not play the piano."

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Australian Song Birds.—An article appeared in a recent issue of the London *Spectator* from the pen of Mr. Will H. Ogilvie, the Australian poet, now living in England, descriptive of Australian birds. It is the opinion of a correspondent writing to that journal that Mr. Ogilvie was not sufficiently appreciative of the ability of Australian birds to sing. In a letter dated from Rothesay, Scotland, the correspondent, Mr. J. D. Ramsay, says :—

" I think that Mr. W. H. Ogilvie has been less than just to the birds of Australia. It may be that living a good deal ' outback ' in the plains country, he has not come in contact with some of the native birds in their natural haunts—the thick scrubs of the coastal districts and the hills and valleys of the coastal rivers. Having been for years an interested student of Australian bird life, particularly in New South Wales, I venture to affirm that Mr. Ogilvie never heard the Reed-bird sing. To me its song, uttered while in flight, like the Skylark, is quite as clear and sweet, quite as intense and many-noted as that of the celebrated British songster. But the song of the one charms with the associations it evokes, while the other, alas, has as yet no poet to endow its melody with added sweetness. When one has heard the song of the Shrike-thrush in the sunny forests there is little liklihood that it will be forgotten, for its delightful melody seems to give the final touch of grace to a perfect sylvan scene, and the bird has every right to the title bestowed upon it—*harmonica*. The Cuckoo's call has little of the thrilling quality which that of the Wonga Pigeon possesses, expecially when uttered in the early morning, as the sun is just touching the tops of the trees; and so persuading is the sound that frequently even the most experienced woodsmen have great difficulty in deciding ifthe bird is within 50ft of them or 200 yards distant. The call of this beautiful and stately bird has laid hold of me as never the call of any other single bird anywhere. Four years ago, when revisiting Australia, I was charmed to hear again the song of the locally named "wild canary," first at the distance of from four to five hundred yards and then closer. This bird outrivals any caged canary I have heard—its notes being louder, richer, more mellow.* Other birds, such as the Butcher-bird, can flute gaily, and I think it a pity that justice is not done to their songs. It is to be hoped that the quickened interest in the affairs of the Dominions which we have noticed lately will widen so as to embrace not only economic, political, and Imperialistic questions, but also the natural history of these vast countries."

* * *

The Oldest Known Birds.—Dr. Petronievics has recently published in the *Annales Geologiques de la Peninsule Balkanique*, Vol. 8, 1925, the results of his studies of the two fossil birds known as *Archaeopteryx*. As is well known the two fossils were found in the lithographic stone strata of Bavaria, believed to be of Jurassic age. One of them is in the British Museum and the other in the Berlin Museum. According to *Nature*, vol. 116, p. 183, Dr. Petronievics "comes to the conclusion that, so far from being the same species, they represent two different sub-classes of birds. For the British Museum specimen he retains the name *Archaeopteryx*, and calls the Berlin one *Archaeornis*. The first is considered to be a primitive ratite and the second a primitive carinate. In general *Archaeopteryx* shows the more primitive characters of the two. The author comes to conclusions, which are certainly not those of the text-book, that the ancestor of birds is to be sought in a primitive group of the *Lacertilia* (lizards) and that the resemblances which have led investigators to see some affinity between birds and the dinosaurs are to be interpreted as due to convergence."

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Sea-Gulls and Grasshoppers.—The Burketown correspondent of the *North Queensland Register* reported on January 18: Grasshoppers have made an appearance since the rain, and birds are gorging on them. Flocks of Sea-gulls first discovered the 'hoppers, and great flights of these birds are scouring the plains. Brolgas, Plain Turkeys, Ibis, Plovers, and other birds are having a good time . . . and have not, so far, protested against the invasion of the land by the hungry sea-birds. But it is obviously a trespass on the land birds' domain, without any chance of them getting back on the visitors when food is abundant in the sea. The Bird on the Land, like the Man on the Land, always gets the worst of the deal.

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*Probably the Rufous Whistler (*Pachycephala rufiventris*)—Editor.

Correspondence.

R.A.O.U. HEADQUARTERS.

(To the Editor).

Sir,—In the last number of *The Emu*, page 227, a paragraph appears in which it is stated I offered a contribution towards the cost of renting new premises for the R.A.O.U.

I made such an offer, certainly, but as no acknowledgment was received within a month my offer was definitely withdrawn. Correspondence in the hands of the Hon. Secretary will bear out my statement.

" Belltrees,"
Scone, N.S.W.
March 5, 1926.

Yours etc.,
HENRY L. WHITE.

THE EMU AT HOME.

(To the Editor).

Sir,—I have just read, with much interest, the article on " The Emu at Home," by D. W. Gaukrodger, in *The Emu* for October, 1925.

I have had no experience with the Emu in Australia; in fact, I have never had the pleasure of visiting your country. On the other hand, I have had much to do with Emus in captivity, and have never yet known the female to take the slighest interest in her eggs once they were laid, much less to assist in incubation. Are we, then, in Mr. Gaukrodger's article, to read " he " for " she " and " him " for " her ", or are we to believe that the habits of the Emu at liberty are at such great variance with its ways in captivity ?

Yours, etc.,
LEE S. CRANDALL,

Curator of Birds,
New York Zoological Park
Nov. 20, 1925.

[Mr. C. M. Betts, of Gladesville, N.S.W., who kept Emus in a paddock, informed North : " Our experience is that the female always sits a fortnight and then the male finishes the incubation." Later, he shut up a female and she successfully hatched the eggs by herself (North, *Nests and Eggs*, Vol. 4., p. 411.) It is clear therefore that individual females differ.—EDITOR.]

COLOUR VARIETIES OF BUDGERIGARS.

(To the Editor)

Sir,—In *The Emu*, July number, there is a note on " Colour Varieties of the Budgerigar," by Mr. A. S. Le Souef. I was in charge of Mme. Lecallier's collection of birds when Mr. Le Souef paid his visit. There was then a good collection of Budgerigars, including blue, olive, jade, yellow, green, and the sage green mentioned. I bred for the first time, when with Mme. Lecallier, the apple-green, the cream, and the jade. I also bred for the first time, in 1923, the cobalt-blue Budgerigar. These were the first seen of this colour (there was a pair) and they were sold to the late Mrs. Dalton-Burgess, of Clifton, Bristol, who, some time later, bought several pairs from M. Blanchard, of Toulouse. The birds mentioned by the late Mr. Astley, in his letter to Mr. Le Souef, were sold to him by me. The following year, 1924, the late Mrs. Dalton-Burgess bred the grey, they having not been bred up to that time. There are the following colours of Budgerigars : Cobalt, grey (or what I call lavender), blue, olive, jade, apple-green (called sage-green by Mr. Le Souef), cream, yellow, and the original green ; there is also a so-called *white,* but these birds are not a pure white, having pale blue underparts. A noted French breeder in the south of France is trying to breed them pure white.

A Budgerigar Club has now been formed in England, and a new colour, cinnamon, is mentioned in their colour standard; but this colour has yet to be produced, and I think it most unlikely that this will be done. I have here the largest breeding establishment of the known colours of Budgerigars in the United Kingdom, and should any members of the R.A.O.U. be visiting England I shall be pleased to see them and show them my collection of birds. No doubt new colours will appear in the near future.

Yours, etc.,

F. GEO. HEDGES, R.A.O.U.

Courtlands, Beaconsfield, Bucks,
England.
Oct. 18, 1925.

SECOND BROODS.

(To the Editor).

Sir,—Mr. McGilp (*Emu*, Vol. XXV., Page 17) contends that few birds rear a second brood. He is no doubt right as far as his locality is concerned. There, the rainfall is meagre, and only after good rains the food supply may be good enough and a stimulant to breed. As far as my observations go, I say emphatically that all or nearly all the the birds in Southern Victoria rear two broods each year, and in the case of *Malurus* as many as four broods have been reared in a Melbourne garden.

After many years of close observation as a collector I may cite the following species at least :—*Acanthizae,* fresh eggs average date Aug. 15th, second clutch Nov. 5th; *Pycnoptilus,* Oct. 1st, Dec. 30th; (Have seen male leading young about and female on eggs); *Erythrodryas rosea,* Oct. 12th, Jan. 1st ; *Climacteris leucophoea,* Sept. 1st, Nov. 25th ; *C. erythrops,* Sept. 30th, Nov. 30th ; *Myiagra rubecula,* Nov. 25th, Jan. 10th ; *M. concinna* Nov. 20th, Jan. 15th ; *Dicaeum,* Nov. 15th, Jan. 15th ; *Melithreptus lunulatus,* Oct. 18th, Jan. 5th ; *Cinclosoma punctatum,* Sept. 20th, Jan. 1st; *Strepera anaphonensis*, Aug. 20th, Nov. 5th; *Oriolus*, Nov. 5th, Jan. 20th; *Chthonicola*, Sept, 1st, Nov. 25th; *Falcunculus*, Oct. 20th, Dec. 30th; *Meliphaga chrysops*, Oct. 28th, Jan. 1st.

Of course, our rainfall averages roughly 23½ inches, and therefore a good food supply is assured. In a very good season I should think that many of our stationary species would hatch out three or even more broods.

Yours, etc.
F. E. HOWE.

Canterbury, Victoria.
Nov. 19 1925.

Reviews.

DR. PHILLIPS ON DUCKS.

["A Natural History of the Ducks."—By John C. Phillips, Museum of Comparative Zoology, Harvard College, U.S.A. Published by the Riverside Press, Cambridge.]

Members of the R.A.O.U. were introduced to this important work in *The Emu*, vol. XXIV, pp. 78-9, when vols. I and II of *The Ducks* were received from the author.

In volume III the excellence of the work is fully maintained. This book deals with the remainder of the sub-family *Anatinae* and the sub-family *Fuligulinae*. The four following Australian species are included: Australian Shoveller (*Spatula rhynchotis*), Pink-eared Duck (*Malacorhynchus membranaceus*), Freckled Duck (*Stictonetta nævosa*), and Australian White-eyed Duck (*Nyroca australis*). Fine coloured plates are given of all.

It is doubtful if the Shoveller of world-wide range (*S. clypeata*) is Australian. Gould states that he saw it himself, and we know it occurs frequently in the Austro-Malayan region, notably at Borneo. However, its life-history will aid us to understand better our own Shoveller, which is the Australian representative of the common Shoveller. Dr. Phillips writes: "Old male Shovellers arrive on the breeding grounds in all the perfection of the spring plumage, but the males of the previous year have the plumage by no means freely developed. Naturalists are divided on the question as to whether or not these young males breed the first season. It will be probably found that those hatched early in the previous season reach sexual maturity by the following spring. Certainly no shoal-water Duck is more irregular than the Shoveller in assuming full dress. Sometimes old and otherwise perfect male specimens will have a brown feather here and there to mar the white of the breast. Absolutely perfect specimens are more rare than in any other species. But it must not be forgotten that lack of full plumage is not necessarily an indication of sexual immaturity either in this or other species."

The clutch of eggs varies from 8 to 14, averaging about 10; incubation period from 22 to 24 days.

The charming little Pink-eared Duck is not found outside of Australia, and has a record for the abundance of down with which it lines its nest, or rather the deserted nest of other birds, such as Ibises, Herons, Coots, &c. Dr. Phillips quotes an Australian observer's note "Mr. Barrett writes me that the nest when in a hollow is sometimes betrayed by a feather caught in a splinter. While examining one clutch, the owners swam about quietly one hundred yards from the stump. He adds that he found it useless to seek for nests by watching the birds, for they seemed to keep away from all likely places."

In dealing with the Freckled Duck, Dr. Phillips has limited its habitat to the south-east corner of Australia, including Tasmania, and to the coastal region of Western Australia only. Its range may be considered continental. Dr. Phillips's own "sporadic records" would indicate that. The Freckled Duck is the rarest and "perhaps the most peculiar of all the peculiar Australian Ducks" on account of the extraordinary conformation of its trachea.

The Australian White-eyed Duck is one of the "Pochards," and one of our commonest species with a range throughout Australia and New Zealand and other islands of the south-western Pacific. The author states: "Very few nests have been described, but clutches of 14, 16, and even 26 eggs have been recorded, probably the work of two females. Nine eggs must be close to the average." However, the author takes Campbell and MacGillivray to task for stating that the White-eyed Duck sometimes nests in hollow trees. He feels that "more convincing observations are necessary before these statements can be accepted." Dr. Phillips is also sceptical about any Duck conveying its young in the bill, from nesting trees, to the ground. The Editor of *The Emu* will be glad of field notes from any observers bearing on these questions.

THE AUK, vol. 42, 1925.

The forty-second volume of the official journal of the American Ornithologists' Union, containing 621 pages of reading matter, is slightly smaller than its predecessor and over a hundred pages smaller than volume forty. Dr. Witmer Stone, of the Academy of Natural Sciences, Philadelphia, continues to act as editor, and, to ornithologists resident outside America, the section in which he reviews recent ornithological literature published in all parts of the world is perhaps the most valuable feature of the journal.

The *Auk*, unlike *The Emu*, does not confine itself to articles on the birds of its native country, though these greatly preponderate. In this latest volume two articles are of special interest to students of the avifauna of Australasia. One by Mr. E. W. Gifford, of the University of California, describes the interesting habits of the Grey-hooded Quail-dove (*Gallicolumba rubescens*) of the Marquesas Islands, as observed in his aviaries. We learn that this bird survives in nature only on two small outlying islands of the group, having been exterminated on Nukuhiva by the introduction of cats. The author considers that most of the species of this genus, peculiar to the Pacific islands, and essentially terrestrial, will undoubtedly be exterminated in their native islands in the same way, and that the only hope of preserving them is to breed them in aviaries. The species take readily to captivity and breed freely in suitable aviaries, and the one specially under consideration may be seen in the zoos of New York, Washington, Milwaukie and London.

The other article referred to is one by Dr. Casey A. Wood, in which he describes a fossil bird's egg from the post-tertiary mud-rocks of Fiji, which was obtained by Mr. Turner, of Suva, and has since been presented to the Museum at Auckland. The egg, in view of its size and colouring, and the proximity of the site where it was found to the ocean, is, in the author's opinion, probably that of a water-fowl. Its geological age is problematical, but it was found fifteen feet below the surface. The shell was well preserved and was dirty grey in colour spotted sparingly with reddish-brown. It measures 1.9 in. x 1.45 in.

Among articles of general ornithological interest in this volume that by Mr. F. C. Lincoln, of the U.S. Biological Survey, entitled " Some results of bird banding in Europe," is perhaps the most valuable. From time to time a note appears in the daily press that a Swallow marked in England has been found in Cape Colony, or a Stork from Germany in the Transvaal. Here we have a summary of all such records, showing how much information as to the migration routes of European birds has been gained by this means. The two species already mentioned appear to be the only ones which visit South Africa, but two species of Terns banded in Holland have been recovered in tropical Africa, and Black-headed Gulls (*Larus ridibundus*) marked at Rossitten, on the Baltic Sea, have been recovered in the West Indies and Mexico.

In the October number appears a letter from Dr. Frank M. Chapman, of the American Museum of Natural History, appealing to describers of new races (subspecies) of birds to state how many specimens they have examined and with what allied races the new one has been compared; in other words to present the evidence on which they relied when distinguishing the new form. As he points out in his opening sentences, " The value of any conclusion depends primarily upon the nature and extent of the evidence from which it is drawn. This is no less true in science than in law. The counsel who asserted the innocence of his client but withheld the grounds for his belief would doubtless lose his case. The physicist or biologist who advanced an original theory but refused to present the data on which it was based would not be taken seriously. Why then should not the systematic zoologist support his opinion by presenting the evidence on which it rests ?"

All Australian ornithologists will hope that Dr. Chapman's appeal, which he has addressed to the *Ibis* as well as to the *Auk*, will produce some effect. Hundreds of new races of Australian birds have been described within recent years by European workers, and most of them exactly on the lines indicated by Dr. Chapman. We have merely been informed that the newly-named form is paler or darker, larger or smaller, than some other. The worker in Australia may have, say, 50 specimens of the species in question and may fail to detect any geographical variation among them, but it is possible that the describer had 500, in which case he was obviously better able to judge . On the other hand, he may have had only 5, in which case his new forms are presumably merely individual variants. Until European workers publish their data most Australian ornithologists will continue to ignore their conclusions as to the races of Australian birds.—W.B.A.

Notes and Comments.

All matter for publication in *The Emu* should be addressed to Mr. A. H. Chisholm, *Daily Telegraph*, Sydney. Contributors are especially requested to have their articles typed or to write technical terms with thorough clearness. The Acting Editor acknowledges with appreciation the fact that in the current issue all States in Australia are represented, as well as New Zealand and England.

Two matters of considerable interest were discussed at a meeting of the Council of the R.A.O.U. held on March 10. The first was a letter signed by seven Victorian members, desiring to meet Victorian members of the Council in order to discuss matters vitally affecting the future of the Union. Authority was given the General Secretary to arrange for this meeting. The second matter was the resignation of the Hon. Treasurer, Mr. Z. Gray. This was accepted wth regret.

Members of the R.A.O.U. should be interested in an Australian Bird Song, which has been written and published by Mr. George Rankin, of Beech Mountain, via Canungra, Queensland. Mr. Rankin knows and loves both music and birds, and his Song embodies most tunefully the melodies of the Magpie, the Currawong, and the Peewee (Magpie-lark). Copies of the production may be obtained from the author.

The date of publication of this Part of *The Emu* was May 5, 1926.

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71790